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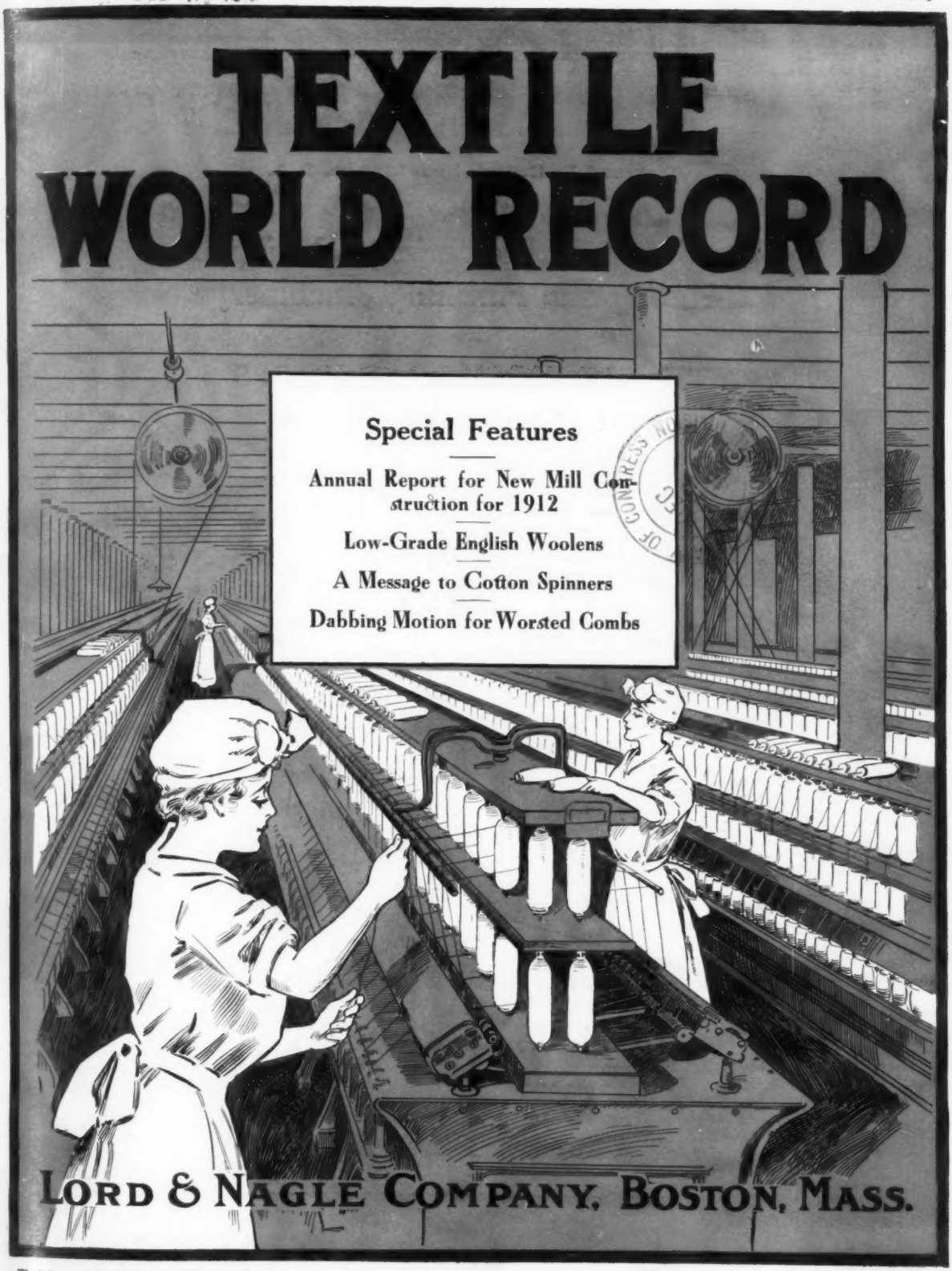
TEXTILE WORLD RECORD



Special Features

Annual Report for New Mill Construction for 1912

Low-Grade English Woolens

A Message to Cotton Spinners

Dabbing Motion for Worsted Combs

LORD & NAGLE COMPANY, BOSTON, MASS.

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The TEXTILE-FINISHING MACHINERY CO.

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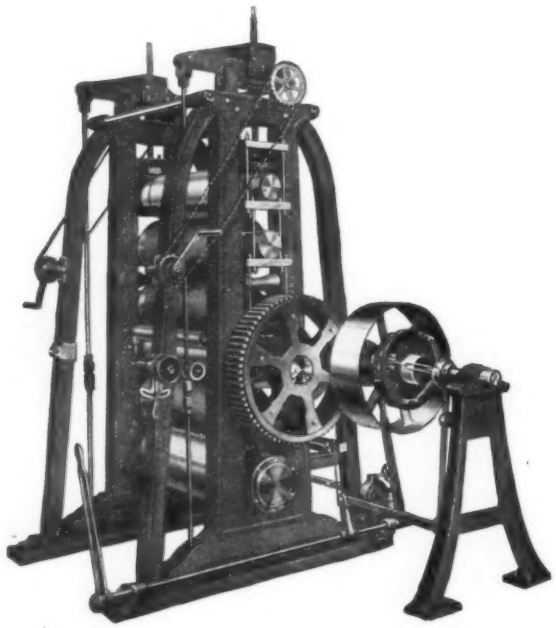

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RAW STOCK, YARN, WOVEN AND KNIT GOODS

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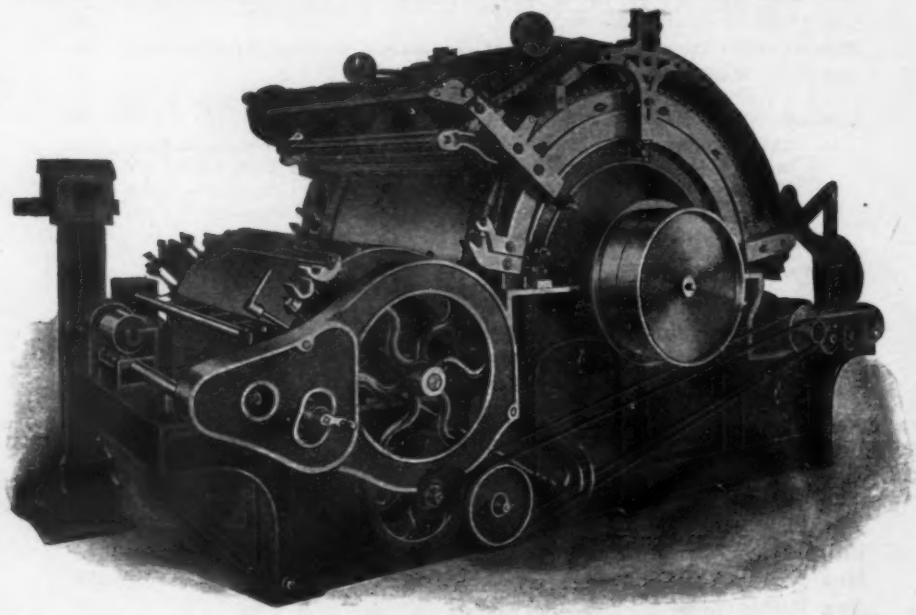
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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TEXTILE WORLD RECORD

DECEMBER, 1912

Monthly Comment.

No Free Wool

Throughout all the agitation over the textile tariff during the last four years wool manufacturers have been unanimous in their support of a tariff on wool. There have been sharp differences between them regarding the form which the wool duty should take, but, so far as their public statements were a guide, they have been as firm in the support of a duty on wool as on wool goods. This was the basis on which the issue was presented to the voters, and on which the new administration received its mandate to revise the textile schedules. Any attempt now to secure a revision of the tariff on a free wool basis would come into conflict with the understanding of wool growers, wool manufacturers and the public. Moreover a duty on wool is not only part of the general understanding, but it is an essential part of any fair revision of the woolen schedule. Despite the figures which are advanced to prove that wool growing in this country is a declining industry, there can be no question but that the United States is suited by nature for the production of wool in great variety and large quantity. These conditions make a duty on wool as necessary as one on goods.

The wool duty is not only justifiable from an economic standpoint, but it is a political necessity. Wool is a product principally of the Middle and Far West. It is consumed principally in mills located in the East. That being the industrial situation any demand from the East for free wool would be accepted in the politically dominant agricultural sections of the West and South as proof of their oft repeated charge that the East is mainly interested in getting everything free that goes into the mills and everything protected that comes out of the mills. The free wool proposition is fundamentally unsound and politically dangerous. It should remain where it has rested for the past fifteen years—in "innocuous desuetude."

The Analysis of Textile Fabrics

An important feature of the most progressive textile mills in the department for the analysis of competing fabrics. Textile manufacturing is not a secret art. A few mills may be found that have developed a special efficiency and economy in certain processes, which are jealously guarded against inspection by inquisitive outsiders, but in nearly all of such cases the special knowledge or skill can be readily acquired by other manufacturers without such inspection. For this reason all that a textile man-

ufacturer needs in order to know what is going on in his competitors' mills is samples of his competitor's goods and the ability to analyze fabrics. Samples are readily obtained and cloth analysis is easy. Despite the importance of the work, however, and the ease with which it can be well done, there are many manufacturers who neglect it, and as a result they are ill-informed regarding the goods that compete with their own.

The subject of cloth analysis gains a new importance by reason of the probability that our mills will be brought nearer to competition with foreign mills by next year's tariff legislation. American manufacturers will be called upon to meet the competition of fabrics now excluded from the home market. To do this successfully it will be necessary to know how the foreign goods are made, and the foundation for such knowledge is an accurate analysis of the competing fabrics. There are a number of wideawake mill managers who have conducted departments of cloth analysis for years, and now have an exceedingly valuable mass of data relating to the construction of other mills' goods. Those manufacturers who have not established the practice of keeping a systematic record of the construction of competing fabrics should lose no time in making a start. For this work an accurate system of analysis is necessary. In our issue of June, 1908, and September, 1911, we gave an explanation of the "straight line" method of cloth analysis, which we believe to be the best method that has ever been made public. We have reprinted the September, 1911, article in the form of a leaflet, and will send it to anyone who may want a copy.

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New Capital in German Textile Mills

The slackening of business in the German textile industry, partly as a result of stringency in the money market, caused a marked falling off in the amount of new capital invested in textile corporations for the three months ending September, 1912. The total for that period was $1,776,000; as compared with $2,858,000 for the corresponding period in 1911; $2,868,000 in 1910; $2,407,200 in 1909; $1,192,000 in 1908; and $2,474,400 in 1907. The decrease in 1908 was due to the financial depression of 1907-08. With the exception of that year the 1912 total is the lowest.

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Short Time in Austrian Weaving Mills

The Balkan-Turkish war has caused a marked falling-off in the cotton trade with Turkey and the Balkan nations, and in Austria the loss of trade has forced on the weaving mills the question of whether short time should be put into force. A meeting of cotton manufacturers was held at Vienna on Oct. 29, to discuss the situation. There was a pronounced sentiment in favor of an immediate curtailment of production in order to make the output correspond with the demand. A number of manufacturers, while in general agreement with the short time proposition, suggested that a more satisfactory solution of the difficulty would be found by securing new outlets for their goods. It was finally decided to canvass the Austrian weaving trade, and arrange, if possible, for a short time schedule.

—÷—

Cotton Exports and Imports

The exports of raw cotton during the nine months ending September for 1910, 1911 and 1912 were as follows:

	Bales	Value	Per lb. cents
1910	3,327,051	$247,439,224	14.5
1911	4,264,955	298,587,463	13.5
1912	6,052,645	333,142,221	10.6

As a result of the two bumper crops of 1911 and 1912 the Southern cotton planters exported 82 per cent. more cotton in the three months of 1912 than in the corresponding three months of 1910, but, owing to the decline in the price, they received this year only 34 per cent. more in cash than was received in 1910. At the price prevailing in 1910, the exports for the three months of 1912 would have amounted to $450,091,948, whereas the actual amount received was $116,849,728 less. Such are the vast differences resulting from fluctuations in cotton prices, which result from the balance between the world's supply of and demand for cotton.

The exports of cotton goods during the same period in 1910, 1911 and 1912 were as follows:

	Value
1910	$39,735,672
1911	32,968,332
1912	25,562,957

The imports of raw cotton during the same three-month periods were as follows:

	Pounds	Value	Per lb. cents
1910	59,402,867	$11,547,266	19.6
1911	91,315,269	19,651,315	21.5
1912	107,697,983	19,664,426	18.3

The imports of cotton goods for the same three-month periods were as follows:

	Cloths	Laces	Knit Goods	Total
1910,	$5,872,605	$25,465,084	$4,464,107	$35,801,796
1911.	6,308,858	25,149,812	3,000,733	34,459,403
1912.	5,489,891	27,761,655	2,632,649	35,884,195

Blowing Out Fires

A recent bulletin of the Factory Mutual Fire Insurance Companies contains the following report of a fire that was extinguished by a blast of air:

On September 28 a fire occurred in the private automatic telephone switchboard room connected with the Baldwin Locomotive Works, Philadelphia. The fire developed certain defects in the arrangement of the heat coils connected with the switchboard, which our electrical engineers are now taking up with the manufacturers to have remedied. The method of extinguishing the fire was very unusual, and at the same time very effective. The usual method of extinguishing fires is by the use of water from a hose stream, or from fire pails, or by the use of chemical extinguishers. In this case, as no hose stream was immediately available, the person discovering the fire seized a hose connected with the compressed air system, and, turning it on the fire, blew it out. This is the first instance, that we have any knowledge of, where air was used as a means of extinguishing fire. It was particularly effective in that the fire, which originated from a short circuit in an automatic safety device known as the heat coil, was of a gaseous nature, due to the material used for insulating the wires. The apparatus connected with the switchboard was of a most intricate nature, and before the fire could be extinguished, considerable damage was done to same.

As a matter of fact air is frequently used as a fire extinguisher. Nearly everyone can recall cases in which fires just starting in paper, cloth or other materials have been extinguished by the observer's blowing it out as he would blow out the flame of a match. Despite the success of the air blast as a fire extinguisher in such cases and at the Baldwin Works, air is not likely to supplant water for that purpose.

The Textilose Industry

Reports from Europe state that a number of mills are being established in various countries for the manufacture of textilose yarn. Two mills are planned for Brazil. A textilose plant in Austria will be operated by the Austrian jute trust. Another mill is to be built in Belgium and backed by French and Belgian capitalists. The Belgian mill plans to manufacture other goods besides bags. It is stated that a textilose plant is to be built at Rethel, France. All these mills operate under an arrangement with the owners of the textilose patents. The process, of which an account appeared in our July issue, enables wool stock so short as to be unspinable, to be converted into a thread for weaving. The material is carded and the web, as it is combed from the doffer, is spread over gummed paper. The paper, to which the layer of stock adheres, is dried on calender rolls and then cut into strips. These strips are twisted to form the yarn. A New England mill established a textilose department some months ago, and the development noted above would indicate that there is room for further extension of the industry in this country.

The Boston Wool Trade Association

The annual meeting of the Boston Wool Trade Association was held at the rooms, 246 Summer St., on Nov. 21. The old officers and members of committee were re-elected with the exception of Thomas Crimmins, who was succeeded on the arbitration committee by Robert L. Studley. The officers and committees are as follows:

Jeremiah Williams, president; Jacob F. Brown, vice-president; George W. Benedict, secretary and treasurer.

Executive committee—Jeremiah Williams, Jacob F. Brown, William R. Cordingley, Ludwig Eisemann, Arthur E. Gill, Summit L. Hecht and William E. Jones.

Arbitration committee—Charles F. Avery, Albert W. Elliott, Abraham Koshland, Matthew Luce and Robert L. Studley.

Low Grade English Woolens

The coming revision of the tariff on wool and wool goods gives special interest to the following report on low-grade English woolens. Nearly two hundred samples accompanied the report:

Leeds, England.

Editor Textile World Record:

As soon as possible after receiving your request for cloth patterns I asked one of the largest ready-made clothing firms in this country to sort me a few patterns out. He has kept me waiting a long time for them, but has eventually brought a very interesting collection which I am sending out by this mail. Each of the bunches but one consists of cloths of one price and the price marked on the top ticket applies to the whole of each set. The goods are all nominally 54 inches wide.

For present purposes I can give you a few general remarks of a more or less enlightening nature: The bunch Sailor 1100 7d (14 cents) is made, as the name suggests, into sailor suits for little boys. 1104 at 8 1/4d (16 1/2 cents), 1117 at 8 1/2d (17 cents), 1125 at 9 1/2d (19 cents), 1175 at 10 1/4d (20 1/2 cents), 1161 at 10d (20 cents), 1316 at 1/1 (26 cents), 1363 at 1/1 3/4 (27 1/2 cents), are cotton warp cheviot of the Leeds kind. These goods are for boy's wear rather than men's, and it is possible that the rags used in making the filling are American mungo rags. You will see that certain of the striped styles are quite smart and cloths of this class give very fair value in wear for boys of junior age.

Style 1243 at 1/- (24 cents) shows a rather heavier make of cotton warp cloth useful for boys' overcoats.

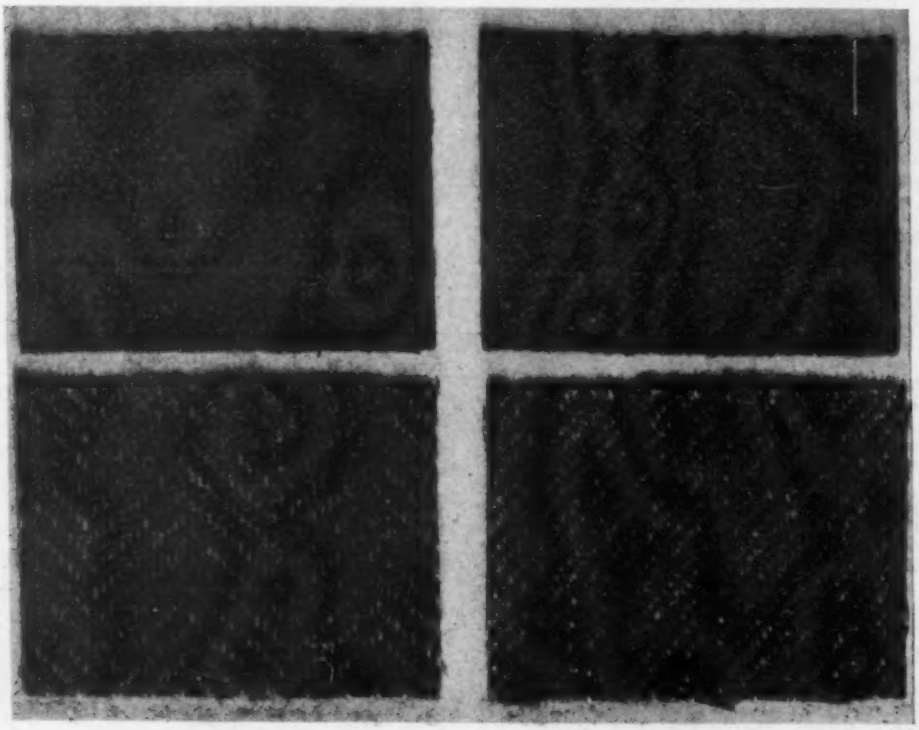
Style 1391 at 1/4 (32 cents) and 1388 at 1/3 1/2 (31 cents) are of the low Colne Valley type. The warp is woolen-spun in some cases and spun cotton in others.

No fine spinning is necessary for goods like 1331 and I remember the time when the mill making them turned out only a plain twill.

1458 at 1/6 (36 cents) is a mixed lot, more tweedy in character than the lower priced goods and principally of Colne Valley origin. In this bunch, 1471 to 1473, are cheap and poor imitations of hand-made Donegal tweeds; 1513 and 1514 are obvious copies of Scotch fancy designs with lots

STYLE 1129

STYLE 1161



STYLE 1332

STYLE 1491

of cotton in both weft and warp, which show the uses of black and white twisting.

In the bunch, 1148, of cloths at various prices are some art-shade serges made for little boys' knickers to go with knitted jerseys of the same tone. The higher priced cloths near the end are Colne Valley goods again. Style 1678 at 1/10 (44 cents) shows good value in soft fillings and hard or cotton-twisted warps. The remaining ranges at 2/- to 2/6 (48 to 60 cents) show Colne Valley superior tweeds of the kind largely used in ready-mades for men and I think you will find that some of this series will repay analysis. Note the imitation fancy whipcord.

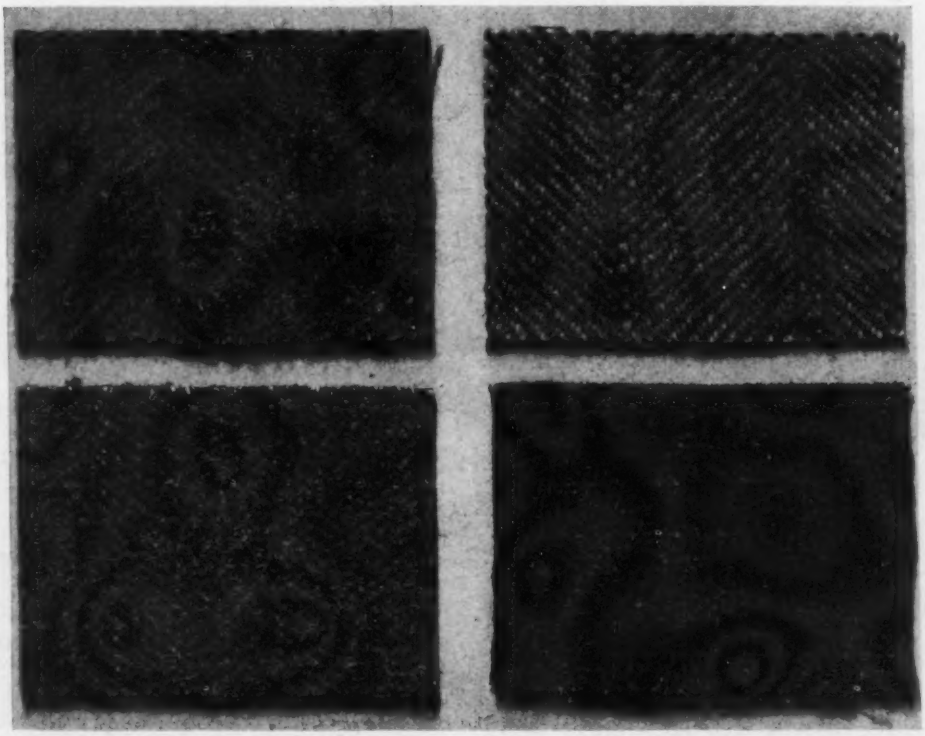
In the 1754 bunch and elsewhere you will find some fancy worsted-face trouserings at 2s, 4d (56 cents) and thereabouts. These have an exceedingly stylish face and a highly rubbishy backing. They are the specialty of a manufacturer at Liversedge who has made this class of stuff for many years and apparently not without profit to themselves.

The samples have an interest as being those selected and used by an English clothing firm with something like one hundred retail shops of its own. These are made into suits with not too much style nor too many trimmings, and are worn largely by boys and youths than men. Men wear what are called "specials" more than ready-mades, i. e., goods to special measure made in wholesale factories, and this trade calls for a larger proportion of superior tweeds than will be found in the bunches sent. The cloths are selected from bunches by the customer and the clothing manufacturers work from the stock of other people as well as from their own. They represent a certain cheap class of trade cultivated by this large clothing firm and give a greater variety of styles than would be found in the samples of perhaps any other firm working up stuff at the same prices.

You will remark the absence of worsteds. Contrary to American precedent, worsteds are almost absent from the ready-made clothing trade in England. Blue worsted serges and fancies sell for "specials" for men and blues are largely made up into ready made costumes for women. The higher class ready-made tailors sell worsteds in boys' suits, but not many. In buying clothes for my own boy the other day at a high-class shop I found tweed suits (3 pieces, size 14) cost about 26s ($6.24) and blue or fancy worsteds about 32s ($7.68) but these are much better cut and finished in all respects than the goods sampled to you. I suppose that about 16s ($3.84) would be a fairly high price for the same size in a tweed costing

STYLE 1687

STYLE 1692



STYLE 1749

STYLE 1760

about 2s (48 cents) a yard. Odd knickers for little boys can be got for as little as 15d (30 cents) in cotton warp serges of the cheapest qualities.

Batley.

In order to give the trade a clear idea of the construction of these goods we have analyzed the nine samples, shown in the illustrations, ranging from about the lowest at 19 cents a yard to the highest at 60 cents:

Style 1129. 9 1/2d (19 cents) per yard, 55 inches, 17 1/2 ounces. Warp, 36 ends, 1/16s cotton. Filling, 20 picks, 3/4 run. The filling is a mixture of cotton and low-grade shoddy.

Style 1161. 10d (20 cents) per yard, 55 inches, 17.3 ounces. Warp, 30 ends, 1/18s cotton. Filling, 26 picks, 1 run. The filling is a mixture of cotton and coarse shoddy.

STYLE 1772

Style 1332. 1s, 1 1/2d (27 cents) per yard, 55 inches, 16.3 ounces. Warp, 21 ends, 2 1/4 run, all cotton. Filling. 24 picks, 1 run. The warp is evidently a cotton waste yarn. The filling consists of coarse shoddy with a small proportion of cotton.

Style 1491. 1s, 6d (36 cents) per yard, 55 inches, 16.6 ounces. Warp, 27 ends, twist (18s cotton and 2 1/2 runs mix). Filling, 21 picks, 1.1 runs. The coarse yarn in the twist warp is a mixture of cotton and shoddy. The filling consists of shoddy and a small proportion of cotton.

Style 1687. 1s, 10d (44 cents) per yard, 55 inches, 14.7 ounces. Warp, 29 ends, 2 3/8 runs. Filling, 32 picks, 2 1/8 runs. Both warp and filling are made from a mixture of shoddy and cotton.

Style 1692. 2s (48 cents) per yard, 55 inches, 15 ounces. Warp, 33 ends twist (20s cotton and 3 run mix). Filling, 37 picks, 2.7 runs. The coarse yarn in the twist warp is a mixture of cotton and shoddy. The filling is made of coarse wool stock without cotton.

Style 1749. 2s, 3d (54 cents) per yard, 55 inches, 16.7 ounces. Warp, 34 ends twist (20s cotton and 3 1/2 runs wool). Filling, 44 picks, 2 1/2 runs. The coarse yarn in the twist warp is all wool stock, probably shoddy. The filling is a mixture of cotton and shoddy.

Style 1760. 2s, 4d (56 cents) per yard, 55 inches, 17.5 ounces. Warp, 82 ends, 2/54s worsted for ground. Filling, 33 picks, 1.4 runs. The ground work of the warp is worsted, the striping being cotton yarn. The filling is made of a mixture of cotton with a small proportion of shoddy.

Style 1772. 2s, 6d (60 cents) per yard, 55 inches, 16 ounces. Warp, 44 ends twist (20s cotton and 3.9 runs mix). Filling, 37 picks, 2.7 runs. The filling and the coarse yarn in the twist warp are made from a mixture of cotton and shoddy.

Under the present tariff low-priced goods, such as these, have been excluded by the specific or so-called compensatory duty. An ad valorem tariff such as was proposed by the Underwood, the LaFollette or the Underwood-LaFollette bill would make the duty a fixed proportion of the value of wool goods, and as a result low-priced merchandise would meet with no greater tariff obstruction than would be placed in the way of high priced goods. The Payne and Underwood duties on the nine samples we have analyzed are given in the following table:

Style	Ounces Per Yard	English Price Per Yard	Payne Duty Per Yard	Payne Duty Ad Valorem	Underwood Duty Per Yard	Underwood Duty Ad Valorem
1129	17.5	$.19	$.460	242%	$.076	40%
1161	17.3	.20	.468	234	.08	40
1332	16.3	.27	.472	175	.108	40
1491	16.6	.36	.522	145	.144	40
1687	14.7	.44	.625	142	.176	40
1692	15.	.48	.653	136	.192	40
1749	16.7	.54	.729	135	.216	40
1760	17.5	.56	.761	136	.224	40
1772	16.1	.60	.744	124	.24	40

It is not certain that the new Congress will adopt the Underwood rates of 20 per cent. ad valorem on raw material and 40 per cent. on cloths, but, having been twice adopted by the Democratic House, they supply a good basis for the discussion of the question as to what duty should be imposed on wool and wool goods in order to equalize industrial conditions in the United States and foreign countries. It is to aid American manufacturers to form an intelligent judgment on this problem that we have obtained the foreign samples and made this report on them. If any wool manufacturer desires to inspect the goods he can do so by calling at our office, and we will distribute the samples to interested manufacturers on application.

In 1911 embroidery exports from Switzerland to the United States were valued at $15,313,795.

A Message to Cotton Spinners

In our October issue we called attention to the series of anonymous advertisements addressed to Lancashire cotton spinners, and which in the third installment made a reference to the Southern Cotton Corporation without, however, making it clear that that corporation was responsible for the advertisements. As a result of our October comment the seventh advertisement, which appeared in the "Guardian" of November 1, was signed by George D. Wadley, president of the Southern Cotton Corporation, and took the form of a reply to our criticism. Mr. Wadley also wrote us offering to explain his plan to our readers and, in response to our acceptance of his offer, we received the following letter:

Macon, Ga., Nov. 26, 1912.

Editor Textile World Record:

Dear Sir:—Your favor of the 18th instant, asking for a statement explaining the details and purposes of the Southern States Cotton Corporation.

This Corporation is formed for the purpose of affording the very necessary relief to the cotton farmers of the South. The cotton spinners are concerned with securing a supply of raw material sufficient to meet their necessities. The world is naturally interested in this same subject.

For the past ten years statistics show that cotton has cost 11 and 67/100 cents per pound to produce it and has been sold at an average of 9 and 80/100 cents per pound. This enormous loss of hundreds of millions of dollars has been borne by the cotton farmers and the Southern people. This loss is sustained by the farmer working his wife and children and allowing them nothing for their labor as well as putting in his own services without remuneration.

The continuance of this condition is unthinkable. We believe this condition is due to the fact that the farmer many years ago had to go into debt to a considerable extent to get supplies on which to make cotton.

Cotton is the most natural crop produced by the South; it is raised in large quantities and as it cannot be eaten the producer of the cotton crop borrows money to purchase his food. He makes a note to the planters' supply man, agreeing in that note (or mortgage) to produce so many bales of cotton. In this way he is bound hand and foot and required to produce cotton, no matter what the price. This note or mortgage is made payable between the 1st day of September and the 15th day of November. This naturally brings into the market in two and a half months an enormous amount of cotton; in fact the needs for the entire world for twelve months are marketed within three months' time.

As soon as the farmer has sold his cotton he sees the price advance to where it would have been profitable to him had he been able to retain it. It is to remedy this evil that this Corporation was conceived and organized.

Our plan is to advance to the farmer 75 per cent. of the market value of his cotton and hold that cotton until we can sell it for 15 cents per pound, then paying to the farmer the difference between the cash advance and the selling price.

In other words: if the market on a given day is 12 cents per pound, we pay to the farmer 9 cents per pound for his cotton (basis middling) and give him a promissory note for the difference between this cash payment and 15 cents per pound . . . or a note for 6 cents per pound on all cotton consigned to us. This note bears interest at 6 per cent. and is renewable at the option of the Corporation. We expect to take care of this cotton out of a margin of 25 cents, plus the commissions of the Corporation.

We have made financial connections whereby we are able to advance money to the extent of three to five hundred million dollars and we believe that by relieving the market of its congested condition at the beginning of the season, enabling the farmers to hold their cotton until the latter end of the season, the entire cotton crop can be sold at a profit.

It is not our purpose to create a trust or produce any hardship upon the spinners or others. We know that it costs 11 67/100 cents per pound to grow cotton and we feel that it is perfectly fair that the producer should have a profit of 25 per cent. and this 25 per cent. is all that is contemplated shall ever be charged. Of course as the cost of production increases the selling price of cotton should naturally increase.

I trust this statement has made the plan of operation of the Southern States Cotton Corporation quite clear to you and that you will agree that our proposition is a laudable one and that you will give us your cordial cooperation.

Yours very truly,
W. T. Anderson, Vice-Pres. for Ga.
Southern States Cotton Corp.

After quoting our warning against the danger of a cotton trust Mr. Wadley in his "Guardian" advertisement of Nov. 1 said:

A COOPERATIVE SCHEME

"Fifteen cents" is our war-cry. In the meantime our plan, as distinct from our ideal, is to take the cotton of such farmers as join our corporation, warehouse it, pay the farmer the market price—that is, the price he would get from the cotton buyer in his own town—and give him scrip entitling him to the difference between the price he got and the price we get, less our expenses and commission. . . . Is there anything sinister or underhand about that? . . . Has the Textile World Record ever heard of farmers forming a trust? . . . Trust is a useful word. It saves a lazy man the trouble of thinking, and gives him a pleasant feeling of having made up his mind. As we pointed out last week, trusts grow in the atmosphere of Exchanges, not cotton fields. A trust could be formed in ten minutes among the wealthy cotton merchants of New York, but no merchants,

much less farmers, would face the danger of prosecution under the Sherman Anti-Trust Law, to say nothing of organized short time on the part of spinners. . . . We want to make clear to spinners that planters are very dissatisfied with the prices they have been getting for cotton, and that they want to find a way of getting more for it.

In the eighth advertisement of Nov. 8, signed by President Wadley, this appears:

What folly it is, therefore, to raise the cry of "Trust" when people who are not speculators, but farmers, take up cotton dealing to try and bring some kind of order out of chaos. Every step that is taken to regulate an industry may be regarded as a step towards a Trust. If a Farmers' Union is a Trust, then the Spinners' Associations are Trusts, their Federations are combines of Trusts, short time is a Trust movement to curtail production and make cloths dear in the East.

In his ninth advertisement on Nov. 15, President Wadley made this assertion:

It is curious that while the organs of the spinning branch of the industry have shown themselves invariably hostile to an associated movement of planters, and are full of fears as to the effect of farmers' unions on the spinning trade, yet the short-time movement calls forth the highest praise from the spinners' papers. Yet the Southern Cotton Corporation is trying to do for the farmers exactly what the spinners have done for themselves—namely, organize themselves against exploitation by market interests.

At the Atlanta convention of the Southern Cotton Corporation on July 12, 1912, President Wadley said:

This natural monopoly of cotton, of the class grown in our country, offers an opportunity for the individual and collective efforts of our citizens to bring about a condition which will establish a stable and a fixed price that shall not only cover the cost of production but add a reasonable profit to that cost.

In doing this there will be no attempt at inflating values, but only creating a market which allows a natural law of "supply and demand" to govern the marketing of this crop.

One fundamental error underlying the plan proposed by the Southern Cotton Corporation is the assumption that "the selling price of cotton should naturally increase as the cost of production increases." Selling prices not only should not, but do not increase with the cost of production unless artificial influences interfere with the law of supply and demand. The owner of a copper mine sells his product at the highest price obtainable regardless of how high or low the cost of production may be; if the business results in a loss the mine is eventually closed. The mine owner and the cotton planter face the same situation in producing and marketing their products, and the Southern Cotton Corporation's plan of advancing prices necessarily involves an arbitrary interference with the law of supply and demand. Having started with an unsound proposition the Southern Cotton Corporation tries to back it up by the absurd claim that "for the past ten years statistics show that cotton has cost 11 67/100 cents to produce it."

The cost of producing the American cotton crop for any year or series of years is not known and in the very nature of things cannot be known. The cost varies from acre to acre, plantation to plantation and State to State; it varies with the soil, the sunshine, the rainfall, the frost, the march of the boll-weevil, the supply of labor and an unlimited number of other factors. The Southern Cotton Corporation claims that "statistics show cotton has cost 11 67/100 cents a pound," and in the corporation's prospectus we find what kind of statistics show this:

I wish to put into print the experience of one man who has had every advantage enjoyed by any person engaged in planting. This gentleman operates a seven-horse farm in growing cotton by hired labor:

STATEMENT

Cost of cotton when grown by wages hands. Farm consists of 600 acres—240 acres planted in 1911.

80 acres planted in corn.
80 acres planted in oats
80 acres planted in cotton.

Fixed charge of $11.66 per acre of planted land	$2,798.40
Fertilizer, $8.00	1,920.00
Mule feed, 7 head	700.00
Renewals and insurance on stock, $35.00 per head	245.00
Tools and repairs	140.00
Labor of 7 men at $20.00 per month	1,680.00
Extra labor, planting and cultivating	300.00
Picking cotton, 50c. per cwt.	325.00
Marketing, ginning, etc.	224.00

PRODUCED

2,000 bushels corn, 25 bushels per acre at $1.00	$2,000.00
150 bushels peas at $2.00	300.00
2,100 bushels cotton seed at 24c.	504.00
2,500 bushels oats at 50c.	1,250.00
6,000 pounds pork at 10c.	600.00
31,500 lint cotton at $11.67	3,678.40
	$8,332.40
At 15c. per pound there would have been a profit of	$1,048.95

Apparently the basis for the claim that the American cotton crop for ten years has cost 11 67/100 cents a pound is this stateemnt regarding a seven-horse farm of which neither the location nor the name of the owner is given. But the statement itself rests on a false foundation. The farm produced, not only 63 bales of cotton, but also a considerable quantity of corn, peas, cotton seed, oats and pork. President Wadley treats these additional products as by-products, subtracts their appraised value from the cost of running the farm and calls the difference the "cost" of the 63 bales of cotton. According to this if corn, peas, cotton seed, oats and pork advance in price, the "cost" of cotton decreases. Is President Wadley prepared to accept the logic of his claim and admit that the selling price of cotton should decrease and increase in inverse proportion to the decrease and increase of the market value of corn, peas, cotton seed, oats and pork? Moreover, if the cost of cotton is to be determined in this way, why not the cost of the other products, say pork for example? Then with cotton at 15 cents the 6,000 pounds of pork from "the seven-horse farm" would cost $448.95 less than nothing. President Wadley has fallen into the same error that the late Tariff Board made in treating mutton as a by-product when calculating the cost of wool.

So much for cost. Now as to the danger of a trust. President Wadley may prefer the expression "a cooperative scheme," but we will submit a few of his statements as evidence that his scheme, by whatever name it may be called, involves the dangerous elements of monopoly and arbitrary price-fixing which are associated in the public mind with the word "trust." At an open meeting of the Southern Cotton Corporation at Dallas, Texas, on Oct. 15, President Wadley outlined his scheme as follows:

> First. That we will be satisfied if we can devise a system by which supply and demand will govern.
> Second. That regulations which prevent this are as little to be desired when applied in favor of the producer as they are when applied in favor of the user. It would seem that the plan would be satisfactory which regulates the market in conformity with the following:
>
> First. A plan which finds the requirements of the world for cotton and supplies it.
> Second. A plan which fixes the price for cotton that will repay the cost of production and a reasonable profit to the grower.
> Third. A plan which provides a surplus against a famine on account of crop failures.
> Fourth. A plan which arranges an automatic cut-off of supply, providing it should exceed the demand above a reasonable surplus.

The prospectus of the Southern Cotton Corporation makes this assertion:

> No one except the farmer is directly interested in maintaining the price of cotton at 15 cents per pound, therefore he alone can be expected to take care of and hold this surplus from the market.

Maintaining a fixed price necessarily involves a monopoly of a product. At 15 cents a pound a 16,000,000 bale crop would amount to $1,200,000,000. That is the ultimate measure of the undertaking by which the balance between supply and demand is to be fixed, not naturally, but arbitrarily by a few men. We ask President Wadley if that is not the meaning of his scheme, and whether his representatives are not now leading the cotton growers to expect that two million bales may be controlled this season and that all of the American cotton crop of 1913-14 may be handled on this basis. To find anything like this scheme it is necessary to go to Brazil where since 1908 coffee has been marketed under a valorization plan. Seven-eighths of the world's supply of coffee is produced in Brazil. Two-thirds of the world's supply of cotton is produced in the United States. On Dec. 5, 1908, when the coffee valorization plan was formed, Rio Standard No. 7 coffee sold in New York for 6 1/2 cents. From that date the price has steadily advanced until on Nov. 12, 1912, the same grade sold in the same city at 15 cents a pound. A fixed price for cotton carries with it the same valorization scheme, and in view of the vast interests involved it is a proposition that deserves the most careful scrutiny in every branch of the cotton trade from grower to consumer.

So much for the economic phase of the question. President Wadley has seen fit to insinuate that we have criticized the cotton valorization scheme because of hostility to

the associated movement of the planters, although supporting the short-time movement of the spinners. Readers of this magazine know better than that. President Wadley will know better when he examines our record on these questions. Among other things he will find that we have opposed the attempt of European spinners to form an alliance with American spinners for the purpose of depressing the price of cotton by organized short time; that we have condemned the claim made by the president of the European Cotton Federation in 1905 that 8 cents a pound was a "fair price" for cotton because, as he said, that price yielded a profit; that we opposed the attempt made in the South in 1907 to fix the price of cotton arbitrarily at 15 cents a pound; that we have condemned the Kuffler-Lang scheme to fix a maximum price for cotton; that we have done all we could to convince the trade of the advantages resulting to the United States from high prices for cotton providing they result from the free operation of the law of supply and demand; and that we have advocated at all times cooperation between all branches of the cotton trade at home and abroad.

The Textile World Record's Report of Mill Construction for 1912

Two hundred and sixty-five new textile mills were built in the United States in 1912, this number being almost exactly equal to the annual average (269) for the preceding ten years. This indicates a healthy development of the industry and a gratifying freedom from depression or an equally undesirable boom. The new mills are distributed among the various branches of the business in about the same proportions found in the record of 1911.

NEW COTTON MILLS.

New England States	No.	Spindles		Looms	
Maine	1	75,000		2,000	
Massachusetts	5	4,400		700	
Rhode Island	4	15,000		358	
	10		94,400		3,058
Southern States					
Alabama	1	35,000		900	
Georgia	1	14,000		300	
Kentucky					
North Carolina	10	153,000		2,000	
South Carolina	5	140,000		3,250	
Tennessee	2	10,000			
Texas	1	10,000		200	
Virginia	1	75,000			
	21		437,000		6,650
Middle States					
New Jersey	1				
Pennsylvania	5	1,700		66	
	6		1,700		66
	37		533,000		9,774

In the cotton industry the South is far in the lead with 21 of the total of 37 mills, 437,000 spindles out of a total of 533,000 installed in new mills, and 6,650 looms out of a total of 9,774. The Carolinas with 293,000 spindles represent two-thirds of the Southern total, and 55 per cent. of the total number of new spindles for the entire country.

NEW WOOLEN AND WORSTED MILLS.

New England	No.	1912	1911	1910	1909	1908	1907	1906	1905
Connecticut	1								
Maine	1								
Massachusetts	5								
Rhode Island	2								
		9							
Middle States									
New Jersey	1								
New York	1								
Pennsylvania	9								
		11							
Southern States									
Tennessee	1								
Virginia	1								
		2							
Western States									
Wisconsin	1								
		1							
		23	17	31	47	22	35	56	38

COMPARISON OF SPINDLES IN NEW COTTON MILLS FOR THE LAST ELEVEN YEARS.

	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902
New England	94,400	170,500	468,714	599,000	115,000	113,000	171,000	100,800	161,184	135,060	347,320
Southern States	437,000	172,000	214,028	527,528	91,193	294,745	294,956	97,290	55,472	281,752	490,256
Middle and Western	1,700	4,920	12,500	79,968	3,500	10,250	27,040	.....	.....	.....	25,000
Totals	533,100	347,420	695,242	1,206,496	209,693	417,995	492,996	198 720	216,656	416,752	862,576

New England has 94,400 of the new spindles, showing a decided slackening in the development of the cotton industry in the older manufacturing section. This is due to

a number of influences, among which is the depression, now about ended, in the fine goods business. The let-up in new mill construction in the leading manufacturing center means a wider distribution of the industry throughout the country, a condition that brings with it many advantages.

NEW SILK MILLS.

	No.	1912	1911	1910	1909	1908	1907	1906
Connecticut								
Broad Silks	1							
Braids	1							
	—	2						
Illinois								
Neckwear	1							
	—	1						
New Hampshire								
Ribbon	1							
	—	1						
New Jersey								
Broad Silks	16							
Throwing	2							
Veilings	1							
	—	19						
New York								
Broad	3							
Trimmings	1							
Underwear	1							
	—	5						
Pennsylvania								
Broad	2							
Ribbon	2							
Throwing	7							
Narrow Silk	3							
Braids	2							
Silk Plush	1							
Winding	1							
	—	18						
Rhode Island								
Broad Silks	1							
	—	1						
Total		47	38	34	37	32	51	36

The woolen and worsted branch of the business accounts for 23 new mills, as compared with an annual average of 35 for the preceding eight years. Among the 23 for 1912 there are six small plants with worsted and woolen spinning machinery, the others being weaving mills or equipped for felts, wadding and other wool goods.

COMPARISON OF NEW MILL CONSTRUCTION FOR LAST TEN YEARS.

	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903
Cotton	37	32	67	80	47	64	74	33	48	81
Woolen	24	20	31	47	23	25	56	38	45	65
Knitting	122	98	113	105	94	88	103	79	111	105
Silk	46	38	34	37	33	51	36	53	49	58
Miscellaneous	36	26	29	20	25	39	34	42	37	25
	265	208	274	289	222	261	303	245	290	334

In the knitting branch Pennsylvania has just one-half of the 112 new mills, the Middle States accounting for 82, or about three-quarters of the total for the entire country.

The silk industry claims 47 new mills, as compared with 38 for 1911 and an annual average of 40 for the preceding seven years. There is a marked tendency toward concentration in silk manufacturing, as shown by the 37 new mills located in New Jersey and Pennsylvania, out of a total of 47 for the whole country.

NEW KNITTING MILLS.

New England	No.	1912	1911	1910	1909	1908	1907	1906	1905
Connecticut	1								
Maine	3								
Massachusetts	7								
Rhode Island	1								
	—	12							
Middle States									
Delaware	1								
Maryland	2								
New Jersey	3								
New York	20								
Pennsylvania	56								
	—	82							
Western States									
California	2								
Illinois	3								
Indiana	3								
Michigan	3								
Minnesota	2								
North Dakota	1								
Ohio	4								
Washington	1								
Wisconsin	4								
	—	23							
Southern States									
Georgia	1								
North Carolina	2								
Tennessee	1								
Virginia	1								
	—	5							
		112	113	104	92	83	108	79	111

The report of enlargements and improvements show that manufacturers have been active in strengthening their plants by extensions and improvements.

NUBS FOR KNICKERBOCKERS

Editor Textile World Record:

How can I full woolen nubs for knickerbockers? The nubs I am using are too soft and I am told they should be fulled before being mixed in the batch. Tyler (2087).

A woolen manufacturer informs us that the best method of making nubs for knickerbockers consists in making the nubs of fine white wool and then coloring them the shade desired. The boiling in the mordanting and finishing baths hardens the nubs so that they passed through the card without much damage. To prevent the nubs from passing through the false bottom of the dye bath a perforated copper bottom could be used; they could also be colored in a cheese cloth bag. Fulling the nubs is likely to mat them in bunches which have to be broken up before being used. They can be fulled by placing them in a bag, saturating with soap and warm water, and pounding them in this condition.

New Mill Construction for 1912

(A summary will be found in the Monthly Comment of this issue.)

EXPLANATION OF ABBREVIATIONS: S=steam power; W=water power; E=electric power; D=dye house.

NEW COTTON MILLS.

ALABAMA.

Sylacauga. Eva Jane Mills; Grey Cloths. Branch of Avondale Mills, Birmingham. (Under construction.) ..... 35,000 looms 900

GEORGIA.

Columbus. Meritas Mills; contract awarded for new mill, 375 by 150 ft., 2 stories high... 14,000 spindles 300

KENTUCKY.

Newport. Empire Wadding Co.; H. W. Harmeyer, sec. and gen. mgr.; $200,000; Commercial Wadding; office, 519 Main St., Cincinnati. (Under construction. Nov., 1912.) ....

MAINE.

Lewiston. Bates Mfg. Co.; new weave shed covering 4 1/2 acres under construction; further construction planned to give increase of 75,000 spindles, 2,000 looms. ..... 75,000 spindles 2,000 looms

MASSACHUSETTS.

Boston. Cynthia Mills; 17 Edinboro St.; $50,000; John D. Steacie, treas. and mgr. Crochet Cottons. ....

Easthampton. West Boylston Mfg. Co.; built new 3-story mill, 272 by 117 ft., with ell 140 by 120 ft.; added story to No. 4 Mill, 326 by 117 ft.; extensive improvements. .... 4,400 ..

Framingham. Standard Woven Fabric Co.; building new mill at Framingham to which business will be moved from Worcester. ....

Lowell. Appleton Co.; built new 5-story mill, 242 by 100 ft. 700

South Sudbury. American Cotton Waste Co.; $250,000; Edward Heaton, pres.; Joseph P. Gillette, treas.; Products from Cotton Waste. (S) ....

NEW JERSEY.

Bridgeton. Bell Cotton Fabric Co.; $50,000; Robt. E. Bell and others; Turkish Towels and Dye Works; plant and machinery purchased. ....

NORTH CAROLINA.

Bladenboro. Bladenboro Cotton Mills, Inc.; $300,000; H. C. Bridger, pres.; C. O. Bridger, treas.; J. L. Bridger, agt., supt. and buyer; 8s to 14s Hosiery Yarns. (S) (Built new brick mill, 103 by 420 ft. Begin manufacturing Jan. 1, 1913.) ..... 8,000 ..

Charlotte. Johnston Mfg. Co.; controlled by C. W. Johnston, pres. of Highland Park Mfg. Co.; W. H. Herne, supt.; built 4,000 spindle mill for manufacture of coarse goods. ..... 4,000 ..

Charlotte. Thayer Mfg. Co.; $500,000; J. T. Lincoln, pres.; O. A. Robbins, treas.; C. B. Skipper, supt.; Fine Cotton Cloth; mill at Thrifton. (Under construction Nov., 1912.).. 25,000 500

Concord. Louis Mfg. Co.; $75,000; John C. Rankin, pres.; Louis Braun, treas.; building new brick mill, 175 by 160 ft., to replace plant of Roberta Mfg. Co., which was burned. ..... 2,000 ..

Franklinton. Sterling Cotton Mill; built new 2-story mill, 280 by 104 ft., to contain 20,000 ring and 3,200 twister spindles for making single and ply ball and chain warps. ..... 20,000 ..

Gastonia. Armstrong Cotton Mills Co.; $200,000; C. B. Armstrong, pres., treas. and buyer; C. M. Dunn, supt.; Combed Yarns, 4s to 14s. (E) ..... 3,000 ..

Henderson. Harriet Cotton Mills; built new No. 3 Mill, brick and cement, 2 stories, 100 by 136 ft., operated by electricity, for manufacture of cotton yarns. ..... 10,000 ..

Marion. Marion Mfg. Co.; building new 4-story mill, 154 by 132 ft.; complete equipment not to be installed immediately. 22,500 550

Rhodhiss. Smith, E. A., Mfg. Co.; $300,000; E. A. Smith, pres. and treas.; J. W. Kidd, supt.; Heavy Drills and Sheetings; (W); Wilson & Bradbury, Phila., s. agts. (Under construction Nov., 1912.) 15,000 450

Roanoke Rapids. Rosemary Mfg. Co.; building new mill to operate on regular product of cotton damasks. (Under construction Nov., 1912.) 22,000 500

PENNSYLVANIA.

Philadelphia. Bowman & Ferguson; Mascher and York Sts.; John D. Ferguson, supt.; Wool Spun Cotton Yarns, 2 to 20 cut; (S); sell direct; firm, buyers. ..... 1,700 ..

Philadelphia, Manayunk. Empire Bed Spread Mills; Green Lane and Mitchell St.; Cotton Bed Spreads. 8

Philadelphia. McPeak, Patrick; Mascher and York Sts.; Turkish Towels; 1 sewing machine; finish; sell direct. 8

Philadelphia. National Hair Cloth Co.; Max Phillips & Son, props.; Meyer Wolf, supt.; Hair Cloths; (S); sell direct; N. Y. office, 395 Broadway. 50

Philadelphia. Philadelphia Hair Cloth Co.; 1727 N. Howard St.; $10,000; James Blacker, treas.; A. Blumenthal, mgr.; Hair Cloth; sell direct. ....

RHODE ISLAND.

Cranston. United Lace & Braid Mfg. Co.; building new mill in Auburn to be operated as branch of Coventry, on Silk and Mercerized Shoe and Corset Laces. ....

Pawtucket. Tubular Woven Fabric Co.; Pawtucket Ave., Carver and Main Sts.; H. B. Huntoon, pres.; Chas. S. Smith, treas.; A. L. Kelly, gen. mgr.; Woven Hose and Similar Tubular Woven Goods. (Buildings under construction Nov., 1912.).. .. ..

Providence. Hebron Mfg. Co.; Grant Mills; new 4-story mill, 276 by 111 ft. 15,000 300

Westerly. Westerly Textile Co.; $100,000; Fred E. Fowler, mgr.; Mosquito Netting and Similar Goods; dye, bleach and finish. .. 58

SOUTH CAROLINA.

Chesnee. Chesnee Mills; $400,000; John A. Law, pres. and treas.; Sheetings. (S) 20,000 400

Easley. Glenwood Cotton Mills; built new mill, 3 stories, 342 by 105 ft.; capital increased from $240,000 to $600,000. ..... 20,000 660

Kershaw. Kershaw Cotton Mill; $200,000; Leroy Springs, pres.; J. M. Carson, sec. and treas.; Cotton Goods. (New brick mill, 280 by 130 ft., under construction Nov., 1912.) ..... 10,000 ..

Lancaster. Lancaster Cotton Mills; building new spinning mill, 300 by 237 ft., extension to weave shed, 127 by 112 ft., and new engine house and boiler room. 60,000 1,500

Whitmire. Glenn-Lowry Mfg. Co.; built new mill, 440 by 130 ft., 5 stories high. 30,000 700

TENNESSEE.

Chattanooga. Southern Aseptic Cotton Co.; $25,000; Robt. T. Cameron, pres. and gen. mgr.; Jack Watkins, sec. and treas.; O. F. Rothe, supt.; Absorbent Cotton. ....

Prendergast. Prendergast Cotton Mills; $100,000; W. J. McLendon, Jr., pres., agt. and buyer; W. R. Froneberger, treas.; 18s to 24s Hosiery Yarns. (E) ..... 10,000 ..

TEXAS.

Post. Postex Cotton Mills; $550,000; C. W. Post, pres.; H. W. Fairbanks, vice pres. and mgr.; A. B. Williams, treas.; Sheetings; bleach and finish. (Building new plant of reinforced concrete; main mill, 520 by 125 ft.; bleachery, 230 by 100 ft.; 6-compartment warehouse, 100 by 40 ft. each; ginning room, 60 by 125 ft.; stock room, 100 by 50 ft.; power house, 80 by 144 ft.) 10,000 200

VIRGINIA.

Danville. Riverside & Dan River Cotton Mills; building new spinning mill, 156 by 461 ft., and new 2-story weaving mill, 315 by 450 ft.; $1,500,000 to be expended. .....75,000 ..

CANADA.

Province of Quebec, Montreal. Neidner's, Chas., Sons; Fire Hose, Cotton Tubing, Razor Strop Fabrics. (Branch of Malden, Mass.) ....

Province of Quebec, Three Rivers. St. Maurice Valley Cotton Mills, Ltd.; $1,250,000; Fine White Goods; to be operated under same management and in conjunction with Wabasso Cotton Co., Ltd. (Under construction, Nov. 1912.) 900

NEW WOOLEN MILLS.

No. Sets Cards / Looms

CONNECTICUT.

Shelton. Derby Worsted Co.; Canal St.; $27,000; Simon Novitsky, pres.; A. Novitsky, treas.; H. D. Hewett, agt., supt. and buyer; Fine Worsteds; Wm. Iselin & Co., s. agts. (E) 50

MAINE.

Corinna. Corinna Mfg. Co.; $50,000; J. H. Winchester, pres.; J. E. Gray, treas.; F. J. Ward, supt.; Cotton Warp Sackings; dye. (S & E) .. 6 24

MASSACHUSETTS.

Clinton. Abbotsford Worsted Co.; $5,000; Frank Scoon, pres.; Worsted Goods; finish. 6

Hudson. Wottoquottoc Worsted Co.; $90,000; E. P. Larkin, pres.; James H. Hancock, treas. and buyer; 16s to 50s 2-ply Worsted Yarns; 4,000 spindles. (E) Built new 1-story mill, 300 by 75 ft. ....

Millbury. Millbury Mills; bought factory building and remodeled for weaving worsteds. 40

Oxford. Howarth, A. & Son; built new 4-story brick mill, 143 by 54 ft., to take place of plant burned; contains 4 sets cards and 40 looms. (E) 4 40

Pepperel. L. & M. Wool Cleaning Co.; $25,000; Wool Scouring. ....

NEW JERSEY.

West Hoboken. Schanzer, Joe; 920-922 Monastery St.; Honey Comb Shawls; sells direct; buys 2/16 to 2/30. 9

NEW YORK.

Cohoes. Enterprise Garnetting Co.; Cortland St.; $75,000; Frank B. Graves, pres. and buyer; Geo. C. Angus, treas.; J. F. Kearney, supt.; Garnetted Shoddies and Waste, Cotton, Wool and Merino; 9 garnets; 9 pickers; (W); sell direct. ..... 6 ..

PENNSYLVANIA.

Philadelphia. Cambridge Worsted Co.; 2nd St. above Columbia Ave.; $25,000; J. Y. Hogg, pres.; R. F. Foulk, treas.; Fancy Worsteds, Men's Wear; (S); J. Y. Hogg, buyer; buy 2/20 to 2/50 worsted. 19

Philadelphia. Kimmerling, Wm., Co.; Cope Mill, Wayne Junction; Wm. Kimmerling, pres. and treas.; John A. Kreis, supt.; Worsted and Cotton Dress Goods; (S); sell direct and A. C. Ruprecht, N. Y., s. agt.; buy 2/50 worsted, 2/30, 2/40 cotton. 20

Philadelphia. McMaster, Wm. P.; Megowan Mills; Adams and Church Sts.; Dress Goods and Men's Wear; (S); sell direct; buy worsted and cotton yarns. 12

Philadelphia. Penn Novelty Works; Turner & Higgins, props.; Howard and Palmer Sts.; Rugs and Carpets; 1 sewing machine; (S); sell direct. 10

Philadelphia. Royal Woolen Mills; Nicetown Lane and Kensington Ave.; John Batty, prop.; Jere Emery, supt.; Woolens and Worsteds for Men's and Women's Wear; sell direct; buy cotton and worsted, 2/40 down, woolen 20 cut down. 7

Philadelphia. Superior Worsted Mills; Howard St. and Montgomery Ave.; Men's and Women's Wear Worsteds; W. J. Simpson, one of the parties interested. 20

Adamstown. Mackey Hat Co.; $25,000; C. H. Mackey, pres., supt. and buyer; A. K. Phillips, treas.; Wool Felt Hats; dye; (S) Wm. Carroll & Co., N. Y., s. agts. ..... 7 ..

Burmont. Columbia Worsted Co.; Burmont Mills; Augustus Koehler, supt.; French Spun Worsted Yarns for Weaving and Knitting up to 50s; Woolen Knitting Yarns from 5 to 26 cut; 7,000 worsted and 1,700 woolen spindles; oil, gas and water; main office, Wallingford. (Building mill to contain 8,000 additional French spindles.) 5 ..

Easton. Crossley, John & Sons; Carpets; branch of English concern. ....

RHODE ISLAND.

Shannock. Equitable Felt Co.; S. Forstot, pres.; G. H. Smith, supt.; Waddings and Felt Products. ....

Woonsocket. Haufe, Otto; 92 S. Main St.; Custom Weaving. 26

TENNESSEE.

Harriman. Harriman-Riverside Woolen Mills; $50,000; W. T. Parham, pres.; E. F. Parham, supt. and buyer; Woolen Yarns; dye; (S & E); sell direct. (Branch of Riverside Woolen Mills, Knoxville.) 2 36

VIRGINIA.

Laurel Mills. Rappahannock Woolen Mills Co.; built and equipped new mill building, 51 by 77 ft., to replace plant burned. ..... 1 ..

WISCONSIN.

Milwaukee. Milwaukee Wadding & Comfort Co.; 911 32d St.; $25,000; Frank J. Maley, pres., agt. and buyer; O. C. Bader, treas.; Wool Wadding, Batts and Comforts; (E) sell direct. ..... 2 ..

CANADA.

Ontario, Perth. Perth Carpet Co., Ltd.; $183,000; Wm. B. Hart, pres.; Wm. H. Towle, treas.; Jas. A. Duncan, supt. and buyer; Carpets, Rugs and Brussels and Wilton Piece Goods; dye (raw stock, yarn); (S); sell direct. 2 17

NEW KNITTING MILLS.

No. Kts. Machines

CALIFORNIA.

Los Angeles. Isis Hosiery Mills; Wittenberg Co., props.; 326-328 S. San Pedro St.; Men's and Women's Silk, Mercerized and Lisle Hosiery, 176 and 220 needle; dye; (E); sell direct; E. J. Wittenberg, buyer; buy 2/32, 2/34, 2/50. 25

Los Angeles. Perfection Knitting Mill; Mildner & Grewe, props.; 2817 W. Pico St.; Sweater Coats for Men, Women and Children and Novelties; 4 sewing machines; sell retailers. 5

CONNECTICUT.

New Haven. Winona Underwear Co.; 30 Wallace St.; $100,000; J. A. Simonds, pres. and treas.; M. S. Bartlett, sec. and buyer; Sweaters, Knit Caps and Skirts; (E). ....

DELAWARE.

Wilmington. Sutro, E. & Son Co.; 5th and French Sts.; Cotton and Silk Seamless Hosiery; branch of Philadelphia. ....

GEORGIA.

Villa Rica. Fuller Hosiery Mills; A. H. Fuller, treas.; W. T. and J. D. Fuller, supts.; Men's and Women's Seamless Hosiery; (S); dye and finish; H. S. Meyer & Co., St. Joseph, Mo., s. agts.; A. H. Fuller, buyer; buy 13/1, 16/1, 4/1, 50/2. 37

ILLINOIS.

Belleville. St. Clair Hosiery Mills; $12,000; John C. Ohms, pres.; Peter Fellner, treas.; Curt J. Vogel, mgr. and buyer; Fine Gauge Mercerized Half Hose; dye; (E); sell direct; buy 30/2 to 60/2 and 70/1 mercerized. 30

Chicago. Phoenix Knitting Works; 2451 W. North Ave.; Louis Marx, prop.; Worsted Hosiery; (E)... 16

Chicago. Winchester Sweater Co.; 422 S. Dearborn St.; $20,000; R. Siegel, pres.; H. S. Adler, treas.; E. E. Moss, supt.; Sweaters; (E). 12

INDIANA.

Fort Wayne. B. & B. Knitting Co.; $10,000; Geo. H. Butler, Adam Baus. (Formerly with Wayne Knitting Mills. Will establish plant.) ....

Indianapolis. Carr, Chas. C., Co.; 3036 E. Georgia St.; $50,000; Charles C. Carr, pres.; C. F. Stewart, treas. and buyer; Wm. O'Niell, supt.; Wool and Merino Athletic Hosiery; (E); sell direct. 8

Richmond. Quaker City Knitting Mills; W. Third St. and Railroad; R. E. Losey, supt. and buyer; Mixed Half Hose; (E). 20

MAINE.

Ellsworth. Blood Knitting Mills; $30,000; John Blood, mgr.; Women's Ribbed Underwear; bleach and finish; (E & S). 40

Lewiston. Jutras All-Wool Knitting Co.; $15,000; Wool Stockings. ....

Portland. Portland Knitting Co.; Congress and India Sts.; $10,000; Saml. Seiger, pres.; Benj. Press, treas.; Sweaters, Caps, etc. ....

MARYLAND.

Frostburg. Parker Hosiery Mill & Dye Works; D M. Mullin, supt.; Seamless Hosiery; (E). (Branch of Portsmouth, Va.) 50

Hancock. Antietam Knitting Co.; Masonic Temple Bldg.; Men's Half Hose. (Branch of Hagerstown.) ....

MASSACHUSETTS.

Boston. Beacon Knitting Co.; 463 Commercial St.; Sweaters, Jerseys and Bathing Suits. 22

Boston. National Knitting Co.; 386 Harrison Ave.; $20,000; D. M. Gold, pres.; Louis Lotow, treas.; Wm. Sedlis, supt.; Sweaters and Caps; sell direct. 28

Cambridge. Sterling Knit Goods Co.; building new 4-story reinforced concrete mill; plant to be removed from Boston and capacity increased 50 per cent. ....

Holyoke. Bennett Knitting Co.; 499 Dwight St.; Wm. A. Bennett, prop.; Gloves and Mittens. 10

Lowell. Tilton, G. H. & Son; Shattuck and Market Sts.; Women's and Children's Cotton Hosiery. (Branch of Tilton, N. H.) ....

Wakefield. Middlesex Knitting Co., Inc.; $10,000; R. E. Fairbanks, pres.; A. H. Fairbanks, treas. and buyer; W. A. Hendrickson, supt.; Underwear and Sweater Coats; 8 sewing machines; sell direct; (S). 6

Winchendon. Wye Knitting Mills; Spruce St.; $10,000; Warren H. Prichard, pres.; Thos. E. Wye, treas. and buyer; Sweaters, Jerseys, Bathing Suits and Athletic Goods; (E); 7 sewing machines; sell jobbers. 10

MICHIGAN.

Detroit. Oakland Knitting Co.; 42 Larned St., West; Men's and Boys' Worsted Gloves; sell direct; buy 2/18 worsted, 2/20 cotton. 25

Detroit. Webber, Geo. F.; 495 Gratiot Ave.; Sweater Coats and Fancy Knit Goods; 8 sewing machines; sell direct; Geo. F. Webber, buyer; buy wool, worsted and cotton. 15

Grand Rapids. Schlientz, Wm. & Sons; 1511 Hamilton Ave. ....

MINNESOTA.

Duluth. Patrick-Duluth Woolen Mill; building new 3-story mill, 140 by 60 ft., to be equipped with hosiery knitting machinery of Mankato Mills Co. of Mankato. ....

Minneapolis. Weyer & Tosney Knitting Co.; C. N. Weyer, C. F. Tosney; Sweater Coats; 12 full automatic and 7 hand and power knitting machines. 19

NEW JERSEY.

Mt. Holly. Keesey Hosiery Co., Inc.; $125,000; George Reid, pres.; Chas. Coles, treas.; John Keesey, mgr. and buyer; Women's Cotton, Mercerized and Silk Hosiery; dye; (S); sell direct. .. 60

West Hoboken. Azoon, Bonamy & Trabiley Co.; Silk Knitted Neckwear; finish; sell direct. 6

Woodbine. Janofsky, Max; Sweater Coats; 5 finishing machines; sells direct. 3

NEW YORK.

Amsterdam. Kosienski & Uruczck Co.; 57 1/2 Milton Ave.; Sweater Coats. ....

Amsterdam. Van Brocklen & Son; 60 Spring St.; M. Van Brocklen, supt.; Gloves, Mittens and Novelties; (E); sell direct; Eli Van Brocklen, buyer. (Branch of Northville.) ....

Brooklyn. Atlantic Knitting Co.; 94 Atlantic Ave.; Knit Neckties. (To increase.) 2

Brooklyn. Atlantic Petticoat & Knitting Co.; 317 Atlantic Ave.; Knit Neckwear. ....

Brooklyn. Behrens, Albert I. & Co.; 1437 Gates Ave.; Full Fashioned Sweaters and Athletic Knit Goods; N. Y. office, 45 E. 17th St. ....

Brooklyn. Cypress Knitting Mills, Inc.; 152-154 Shepherd Ave.; $10,000; Paul Scheftel, pres. and buyer; Geo. A. Einsetler, treas.; Sweaters and Bathing Suits for Men, Women and Children; 10 sewing machines; (E); sell direct. 10

Brooklyn. Milton Mfg. Co.; 913 Gates Ave.; $5,000; A. W. Copeland, pres.; R. Abramson, treas. and supt.; Knitted Neckties. 10

Brooklyn. Phoenix Knitting Mills; 427 Hart St.; Sweater Coats, Aviation Caps and Fancy Knit Goods. ....

New York City. Arrow Knitting Mills; 358 W. 18th St.; $25,000; Ben Bangser and Harry Simon; Knitted Silk Neckwear; 2 sewing machines; sell direct. 20

New York City. Crown Knitted Neckwear Co.; 346 Canal St.; Knitted Neckwear; 2 sewing machines; 1 winder; (E); sell direct. 6

New York City. Dorfman Bros.; 195 Allen St.; A. Dorfman, pres. and buyer; Meyer Dorfman, treas.; Knitted Neckwear; finish (E). 12

New York City. Haboush, R.; 101 Washington St.; Knitted Silk Neckwear. ....

New York City. Hollander & Neugroschl; 1624 Lexington Ave.; Infants' Sweaters; 15 sewing machines; (E); buy all numbers cotton and worsted. (May remove to new address.) 15

New York City. Perfection Notion Co.; 18 Mercer St.; M. Joveshof, prop.; Knitted Specialties. ....

New York City. Phillips Knitting Mills; 285 Broadway; Knitted Silk Neckwear. 10

New York City. Samuels, Joseph & Co.; 133 W. 20th St.; Silk Knitted Neckties. ....

New York City. Zimmern & Levi; 756-760 Broadway; Knitted Silk Neckwear. ....

Oswego. Spanswick Mfg. Co., Wm. H.; Jas. A. Shufelt, mgr.; Children's Underwear; capacity, 700 doz. daily; branch of Fulton. (Purchased and equipped building erected by Mr. Shufelt.) ....

Parish. Spanswick Mfg. Co., Wm. H.; Children's Ribbed Underwear; capacity, 200 doz. daily; branch of Fulton. (Purchased building and equipped with new machinery.) ....

Washington Mills. Imperial Textile Co.; Infants' Bands and Wrappers; building new 2-story mill, 30 by 80 ft., and will move equipment from Utica about Jan. 1. ....

NORTH CAROLINA.

Hendersonville. Freeze Hosiery Mills; $25,000; R. P. Freeze, pres., treas. and buyer; Ladies' Fine Gauge Hosiery; 4 sewing machines; (E); Condit & Arnold, N. Y., s. agts.; buy 20, 24, 36 combed yarns. 40

Salisbury. Meredith Hosiery Mfg. Co.; W. L. Horah, mgr. (To increase.) 20

NORTH DAKOTA.

Fargo. Red River Knitting Mills; 608 Front St.; M. E. Linke, prop.; Full Fashioned Sweater Coats, Stockings, Shawls and Skirts; 6 sewing machines; (E); sell direct; buy 2/5, 2/16, 2/20, 4/15 worsted. 13

OHIO.

Cleveland. Empire Knitting Co.; 5701 Euclid Ave.; $25,000; Sweaters, etc. (Plant being equipped, Nov. 1912.)

Cleveland. Fashion Knitting Co.; Fountain Bldg., W. 2nd St.; $10,000; Frank H. Murphy, pres.; E. S. Couzens, treas. and buyer; Aug. Rosen, supt.; Sweater Coats, Skirts and Toques; 4 sewing machines; (E); sell direct and R. H. Ruehl & Co., Chicago, s. agts.; buy 2/16, 3/20, 2/24, 2/8, 2/23 worsted and 1/10 cotton. 14

Cleveland. Keller Knitting Co.; 1538 E. 49th St.; $25,000; Wm. A. Keller, mgr.; Knit Coats; 6 sewing machines; sell direct. 11

Columbus. Ohio Penitentiary; Robt. Weddell, supt.; Underwear for State Institutions; 30 sewing machines. 24

PENNSYLVANIA.

Philadelphia. Acme Knitting Co.; E. Thompson and Neff Sts.; $5,000; Joseph T. North, Henry Lilley and Geo. Y. Lilley; Knitted Neckties. 12

Philadelphia. Bartman, Louis H. & Co.; 327 N. 8th St.; Knitted Neckties and Millinery and Dress Trimmings; finish; (E); sell direct. 12

Philadelphia. Brentmore Knitting Co.; Ontario and I Sts.; Gustav Schiff, pres.; Richard Schletter, mgr. and supt.; Ladies' Silk and Cotton Full Fashioned Hosiery; sell direct, Fifth Ave. Bldg., N. Y. 26

Philadelphia. Bry, Louis & Co.; Lehigh Ave. and Mascher St.; Jas. Armitage, supt.; Boucle Cloth; 10 knitting frames; (S); sell direct; buy cotton, wool, worsted and mohair. 10

Philadelphia. Burton Hosiery Co.; Allegheny Ave. and C St.; J. F. Burton, mgr.; J. H. Shaffer, supt.; Hosiery; 20 loopers; dye and finish; (S); H. M. Gwinn, buyer. (Dept. of Oneida-Regal Textile Co.) 100

Philadelphia. Carney & McLaughlin; 143 N. 3rd St.; Thos. A. Carney, supt. and buyer; Cords, Girdles, Trimmings and Knitted Neckties; (E); sell direct; buy cotton, worsted, silk and mercerized.

Philadelphia. Chatham Hosiery Co.; Trenton Ave. and Sergeant St.; Watt & Bro., props.; Women's Cotton, Silk and Mercerized Hosiery; finish; (S); sell direct. 20

Philadelphia. Cohn, Bernard M.; 208 S. 3rd St.; Silk and Mercerized Knitted Ties; 3 sewing machines; finish; (E); sells direct; buys silk, art silk and mercerized. (Proposes to install machinery for making sweater coats and mufflers.) 5

Philadelphia. Colby Hosiery Co.; Chas. Colby, prop.; 2nd and Diamond Sts.; Cotton and Silk Hosiery. (Not fully equipped, Nov. 1912.)

Philadelphia. Commercial Knitting Mill Co.; 1666 Oxford St., Frankford; John Goldenberg, pres.; J. G. Campbell, treas.; Knitted Neckwear; finish; (E); L. Joynes, buyer; buy silk, art silk and mercerized. 9

Philadelphia. Concordia Silk Hosiery Co.; Wyoming Ave. near Oxford Pike; $30,000; George Wucherer, supt. and buyer; Full Fashioned Silk Hosiery; 10 full fashion frames; 3 loopers; 3 seamers. 10

Philadelphia. Cotler Knitting Mills; 253 S. Fifth St.; Knitted Neckties.

Philadelphia. E. M. Mfg. Co.; 813 Locust St.; E. R. Branson, prop.; Silk Knit Neckties; finish; (S); sell direct.

Philadelphia. Erstling Bros. Knitting Mill Co.; Mascher St. and Lehigh Ave.; $10,000; Louis Rothschild, pres.; Max Erstling, treas.; Arthur Townsend, supt.; Women's Underwear, Vests and Union Suits; 16 sewing machines; finish (S); sell direct; Max Erstling, buyer; buy cotton, mercerized and silk. 20

Philadelphia. Friedman, L. & Co.; 241 Market St.; L. Friedman, supt. and buyer; Sweater Coats and Bathing Suits; 8 sewing machines; finisn; (E); sell direct; buy wool, worsted and cotton. 18

Philadelphia. Globe Knitting Mills; 27-29 S. 7th St.; Knitted Silk Neckties; sell direct. 9

Philadelphia. Grant, H. A.; 4960 Baynton St., Germantown; Crochet Neckwear; 2 hand frames; 1 sewing machine; sells direct. 2

Philadelphia. Herfurth Silk Hosiery Co.; Mascher St. and Lehigh Ave.; Gustav Herfurth, supt.; Full Fashioned Silk Hosiery; 3 frames; 1 sewing machine; finish; (S); sell direct; buy mercerized and silk.

Philadelphia. Home Knitting Mills; 5th St. and Lehigh Ave.; Sweaters, Bathing Suits and Fancy Knit Goods.

Philadelphia. Howell, Stein & Co.; 1302 Filbert St.; Knitted Silk Neckties.

Philadelphia. Landau, S.; 10 S. 4th St.; Knitted Neckties.

Philadelphia. Laurel Knitting Co.; 73-79 Laurel St.; Wm. Bennett, pres.; H. H. Lilley, mgr.; Knitted Silk Cravats; 2 sewing machines; finish; gas; sell direct; buy silk, art silk and mercerized. 10

Philadelphia. Manhattan Neckwear Co.; Elias S. Landau, prop.; 10 S. 4th St.; Knitted Silk Neckwear; 3 sewing machines; finish; (E) sell direct; buy silk, art silk and mercerized. 6

Philadelphia. Nuidea Knitting Co.; 623 E. Westmoreland St.; John L. Sutphen, mgr.; Knitted Silk Ties and Cravats; (E); sell direct.

Philadelphia. Novelty Cravat Co.; M. J. Seidman; 106 S. 11th St.; Silk Knitted Neckties; finish; (E); sell direct. 11

Philadelphia. Oliver Knitting Co.; 2720 N. 5th St.; Jas. and T. A. Oliver, props.; Sweater Coats, Bathing Suits, Golf and Athletic Hosiery; 9 sewing machines; finish; (E); sell direct; T. A. Oliver, buyer; buy 2/16, 2/26 worsted, 2/10 to 2/16 cotton... 20

Philadelphia. Phillips, Edward A., Co.; 2nd and Market Sts.; Shaker Sweater Coats, Bathing Suits, etc.; 5 sewing machines; sell direct; buy wool and worsted yarns. 14

Philadelphia. Portner, S.; 257 Market St.; Knitted Silk Neckties; 1 sewing machine; finish; (E); sell direct; buy silk, art silk and mercerized. 8

Philadelphia. Roxborough Knitting Mills; 35 S. 3rd St.; Jacob Herzberg, supt.; Cardigans and Sweater Coats; 15 sewing machines; (E); S. Marku, Phila., s. agt.; W. Weinrach, buyer; buy wool, worsted and cotton yarns. 14

Philadelphia. Russell & Lees; Mascher and York Sts.; Knitted Silk Neckties; 1 sewing machine; (S); finish; sell direct; buy silk and art silk. 24

Philadelphia. Saftlas, Joseph; 918 S. Bodine St.; Knitted Neckties.

Philadelphia. Seidman, Chas., Co., Inc.; 255 N. 4th St.; $10,000; Chas. Seidman, pres. and treas.; Edw. Frimmel, supt.; Crocheted and Woven Neckwear and Mufflers; 4 sewing machines; (E); finish; sell direct; Edw. Frimmel, buyer; buy plain and mercerized cotton. 30

Philadelphia. Shaefler & Choinsky; 1227 W. Cumberland St.; Silk Knitted Neckties.

Philadelphia. Stein & Sondheimer; Owl Knitting Mills; 112 N. 12th St.; Chas. P. Cerin, supt.; Knitted Neckwear; 1 sewing machine; finish; (E); sell direct; I. Stein, buyer; buy silk and mercerized yarns, skeins. 15

Philadelphia. Stenton Hosiery Mills; 4945 Wakefield St., Germantown; James B. Meacham and Cornelius Haney; 216 and 240-needle Cotton and Mercerized Ladies' Hosiery; finish; sell direct and thro' agts.; buy 24s to 80s cotton and mercerized. 40

Philadelphia. Taubel, Wm. F.; Emerald and Westmoreland Sts.; Hosiery and Neckties. (Branch of Riverside, N. J.)

Allentown. Rexall Knitting Co.; 18 N. Church St.; $10,000; G. W. Martin, supt. and buyer; Silk Knit Neckties; 1 sewing machine; (E); finish; sell direct. 10

Chambersburg. Blue Ridge Knitting Co.; King St.; Hosiery; branch of Hagerstown, Md., where all buying is done. (To increase.) 50

Erie. Mentor Knitting Mills Co.; Mayer Bldg.; Finishing only for mill at Mentor, O.; 64 sewing machines.

Gibraltar. Gibraltar Hosiery Mills; Half Hose. 50

Lititz. Rick Knitting Co.; Water St. and Reading R. R.; Men's Hosiery. (Branch of Reading.)

Newport. Smith, E. O. & Bros.; Men's Hosiery and Stocking Feet; finish; (S & W); sell direct and thro' agts.; E. O. Smith, buyer. (To increase.) 10

Norristown. Carney & Taubel; Penn and Markley Sts.; Geo. S. Carney, supt. and buyer; Misses' and Children's Ribbed Hosiery; 300 ribbers; dye and finish; (S & E); sell direct. 200

Norristown. Silk Hosiery Mills; Emil Escheman, prop.; 840 Smith St.; Fine Gauge Silk Hosiery; (E); sell direct. 50

Orwigsburg. Excelsior Knitting Co.; Kern Bldg.; John N. Heim, pres.; M. C. Schraer, sec.; Wm. Ehly, gen. mgr.; Ladies' Ribbed Vests and Union Suits; (E); J. H. Leich Co., N. Y., s. agts.

Orwigsburg. Royer, William; Women's Ribbed Underwear and Union Suits. ..

Pottsville. Acme Knitting Co.; Fegley and Graver, props.; 9th and Mine Sts.; H. E. Fegley, supt.; Ladies' Ribbed Vests and Infants' Wrappers; 5 sewing machines; finish; (E); J. H. Leich and L. P. Naylor Co., N. Y., s. agts.; H. E. Fegley, buyer; buy 11s and 24s. 7

Pottsville. Anthracite Knitting Mill; John Hock, pres., treas. and buyer; Harry Nagle, supt.; Knit Goods, Children's Waists; 18 table machines; (E). 7

Pottsville. Mr. O'Connor, formerly of Petrie & O'Connor, building new mill and will manufacture ladies' ribbed underwear. ..

Quakertown. Quakertown Knitting Mills Co.; E. O. Correll, pres.; O. Paul Kaffke, treas. and buyer; Ladies' Cotton, Mercerized and Silk Hosiery; 25 ribbers; 20 loopers; dye; (E). (Built new mill, 43 by 150 ft., 2 stories and basement.) 100

Reamstown. Hope Hosiery Mill; C. Ansel, supt.; Seamless Half Hose; 6 ribbers; 2 sewing machines; oil engine. (Branch of Adamstown.) 38

Seven Valley. Seven Valley Hosiery Mills; Nathan and H. I. Gladfelter; Men's Half Hose; 5 ribbers; 4 loopers; (S); sell thro' com. brokers; N. & H. I. Gladfelter, buyers. 20

Schaefferstown. Housers' Hosiery Mill; Chas. Houser, pres. and buyer; Isaac Houser, supt.; Men's and Women's Hosiery; (S); 2 sewing machines 10

Shamokin. Giles Mfg. Co.; 120 E. Chestnut St.; W. T. Giles, treas. and mgr.; Fred English, agt.; W. J. Giles, supt.; Ladies' Hosiery, Silk, Mercerized and Lisle; 2 sewing machines. 10

Sharon. Schell, R. M., Co.; $12,000; R. M. Schell, Nicholas Mehler and Patrick Moriarty; Sweaters, Hosiery, Caps, etc. .....

Shoemakersville. Merit Underwear Co.; $10,000; Benj. M. Bhaer, treas.; E. T. Williams, mgr.; Women's Underwear; 12 sewing machines; (S); buy 12s to 26s combed and carded. (Begin mfg. Jan. 1, 1913.) 9

RHODE ISLAND.

Woonsocket. Gold Mark Knitting Co.; Wm. A. McCarthy, Thos. F. Reilly and Thos. E. Sharkey; Jerseys, Sweaters, Bathing Suits and Novelties... ..

TENNESSEE.

Harriman. Harriman Hosiery Mills; $100,000; J. F. Tarwater, pres.; Tom Tarwater, treas.; Garnett Andrews, gen. mgr. (Building plant consisting of 2-story brick building, 60 by 150 ft., and two 1-story buildings, 35 by 70 ft. and 50 by 150 ft.) 100

VIRGINIA.

Newport News. Stewart Hosiery Mills, Inc.; $100,000; Harry E. Stewart, pres. and treas.; J. H. Le Coney, supt. and buyer; Misses' and Half Hose; dye. (Not fully equipped, Nov. 1912.) .....

WASHINGTON.

Seattle. Washington Knitting Mills; Alexander C. Wilhelm, prop.; Knit Goods; 2 sewing machines; hand power; buy 2/30, 3/15, 4/15, 2/7. 3

WISCONSIN.

Milwaukee. Peerless Knitting Co.; 685-691 Third St.; $15,000; P. E. Yolles, pres., treas. and buyer; Sweaters and Patented "Uneedme" Protectors; 24 sewing machines; (E); sell direct. 32

Milwaukee. Reliable Knitting Works; $5,000; Armin Rosenberg, pres., treas. and buyer; Saml. Rosenberg, supt.; Fancy Knit Goods. 12

Phillips. Schliefe, Louis; Sweater Coats, All Wool Goods. ..

Racine. Racine Hosiery Co.; $25,000; W. R. Anderson, pres.; A. R. Anderson, treas., agt. and buyer; J. H. Brinsley, supt.; 220 and 240-needle Hosiery and Half Hose, Lisle, Mercerized and Silk; 2 sewing machines; dye; (E); sell direct. ... 15

CANADA.

Alberta, Calgary. England Knitting Co.; $10,000; H. Hong, pres.; M. Lin, treas.; H. B. Lane, agt.; N. Sing, supt.; N. D. Quon, buyer; Knit Goods for Men, Women and Children; 3 sewing machines; sell direct; buy 2 to 6-ply yarns. 5

New Brunswick, Moncton. Humphrey Unshrinkable Underwear, Ltd.; $500,000; F. W. Sumner, pres.; W. F. Ferguson, treas.; J. L. MacDonald, mgr. and buyer; Men's All Wool Underwear; 5 sets cards; 20 sewing machines; bleach; gas; sell direct. (Begin mfg. Jan. 1, 1913.) 13

Ontario, Brampton. Best-Knit, Ltd.; John McMurchy, pres.; L. J. Layden, mgr.; Sweaters, Ties, Scarfs, etc. .....

Ontario, Guelph. Colonial Knitting Co., Ltd.; $100,000; Winthrop H. Moore, pres., mgr. and buyer; Sweaters, Fancy Knit Goods, etc.; 25 sewing machines; (E). 25

Ontario, Niagara Falls. Visor Knitting Co.; Sweater Coats and Toques. (Branch of Niagara Falls, N. Y.) .....

Ontario, Toronto. May Manufacturing Co.; Knitted Silk Neckties; finish. .....

Ontario, Toronto. Outing Knitted Wear, Ltd.; $40,000; W. J. Robinson, pres.; Frank W. Robinson, treas. and buyer; Max Becker, supt.; Sweater Coats, Scarfs and Toques; 6 sewing machines; dye; (E); sell direct. (Arranging to reorganize as Frank W. Robinson, Ltd.) 8

Ontario, Toronto. Reid, A. T., Co., Ltd.; 266 King St.; Knitted Ties for Men and Women. .....

Province of Quebec, Montreal. Perfecknit Mfg. Co.; 579 St. Paul St.; H. Bloomberg, supt.; Sweater Coats, Toques, Stockings, Mitts, etc.; 6 sewing machines; (S); sell direct. 6

NEW SILK MILLS.

Looms

CONNECTICUT.

Rockville. Mueller, Julius H. & Co.; 14-16 Morrison St.; J. H. Mueller, supt.; Round Braided Silk Specialties; 60 braiders; electric. .....

Watertown. Heminway, M., & Sons Silk Co.; contracts awarded for buildings to comprise new plant; main mill, 3 stories and basement, 300 by 53; dye house, 53 by 82; boiler house, 52 by 42; wash room, 52 by 53; dry room, 30 by 31; all of brick mill construction. .....

ILLINOIS.

Chicago. Tubular Neckwear Co.; 961 Montana St.; Men's Neckwear; (E); sell direct; Henry H. Decker, buyer. 6

NEW HAMPSHIRE.

Suncook. Suncook Artistic Webbing Co.; Emil and Robert Zinn; Edgings and Webbings. .....

NEW JERSEY.

Jersey City. Kazanjian, Thos. B.; 330 Westside Ave.; Broad Silks. 14

Passaic. Villa, A. P. & Bros.; Central Ave.; Warping, Quilling, Winding and Throwing; N. Y. office, 487 Broadway. .....

Paterson. Brandt Mills; Madison Ave.; $50,000; C. Mazury, agt., supt. and buyer; Silks; Am. Whalebone Co., N. Y., s. agts. 50

Paterson. Gorin Blake Silk Co.; 47 Goodwin St.; Broad Silks; dye; (E); sell direct; M. Gorin, buyer. 10

Paterson. Grand Silk Co.; State St. Mill; $20,000; Saml. Neinken, pres.; Isidor Newman, treas., supt. and buyer; Broad Silks. 26

Paterson. Hanover Silk Mfg. Co.; $25,000; 189 Lyon St.; N. Gerst, M. Miller, J. Cohen and S. Nelfeld; Broad Silks. 14

Paterson. Margolin & Baten; Gun Mill; Broad Silks; sell direct. 15

Paterson. Maywood Silk Co.; Dorloni Mill; $50,000; C. W. Lewis, supt.; Broad Silks. 40

Paterson. Moll, John H.; 643 Eleventh Ave.; Broad Silks. .....

Paterson. New Fashion Silk Co.; 200 Straight St.; Lefcokowitz & Dressler; Broad Silks. 10

Paterson. Oppenheimer, Stern & Hacker; Ward St. Mill; Danl. Cook, supt.; Chiffon Veilings. 10

Paterson. Regal Silk Co.; Todd Mill; $20,000; Broad Silks. 30

Paterson. Rosenberger, H.; Hamilton Mill; Broad Silks. 16

Paterson. Rosenberger, J.; 93 River St.; Broad Silks. 30

Paterson. Royal Silk Mfg. Co.; Essex Mill; $20,000; Hyman Fire, pres.; Sam'l Laurence, treas.;

Henry Biber, agt.; Harry Littman, supt.; Broad Silks; (S & W); sell direct; Nathan Rosen, buyer. 18
Paterson. Special Silk Co.; Gun Mill; Broad Silks. 12
Paterson. Tarr Silk Co.; Essex Mill; Broad Silks. 10
Paterson. Truth Silk Co.; Warhaftig & Levine; 93 River St.; Broad Silks. (To increase.) 20
Phillipsburg. Valentine & Bentley Silk Co.; Broad Silk Goods; (S); leased and equipped building formerly occupied by John Ramsay & Sons. 80

NEW YORK.

Astoria. Robinson, T. A.; Franklin and Munson Sts.; Broad Silk Novelties. 30
Ballston Spa. Clark Textile Co.; leased building to be equipped and operated as branch of Saratoga Springs. ....
Lackawanna. Janes Silk Mills Co.; Broad Silks; building mill to be operated as branch of Paterson, N. J., with equipment to be moved from that place. ....
New York City. Italian Silk Underwear Co.; 139th St. and Morris Ave.; M. S. Siegel, pres., treas. and buyer; 4 machines for 5-yard goods, and auxiliary machinery; office, 125 W. 22nd St. ....
New York City. Schnitzer & Co.; 113 University Pl.; Millinery and Dress Trimmings; 6 knitting looms. ....

PENNSYLVANIA.

Egypt. Feldhege, H. J., Silk Mfg. Co.; $30,000; Elgin F. Zellner, pres.; H. J. Feldhege, treas.; Broad Silks; 84 looms. (Built new mill, 160 by 60 ft. and later addition to same, 40 by 80 ft.) 84
Green Lane. Hill Silk Mfg. Co.; built new branch mill for making plain broad silks; fancy weaving department continued at Paterson. ....
Herndon. Hartman, F. Q., Inc., of Danville, building new branch mill for silk throwing. ....
Johnstown. Buser Silk Co., Inc.; $50,000; John C. Wellwood, pres.; Raymond G. Buser, treas., agt., supt. and buyer; Silk Ribbons; John C. Welwood, 477 Broome St., N. Y., s. agt. 40
Mechanicsville. Hartman, F. Q., Inc., of Danville, building mill to be equipped for silk throwing. .. ..
Nazareth. McCollom & Post Co.; $125,000; Dress and Tie Silks. (Branch of Paterson.) ....
Philadelphia. Globe Textile Co.; 2834 Boudinot St.; F. J. Maloney, mgr. and buyer; Woven Silk Novelties and Knit Neckwear; 5 knitting and 3 sewing machines; sell direct; buy silk, art silk and mercerized. 6
Philadelphia. Ideal Braid Co.; 404-412 Brown St.; Millinery Braids and Dress Trimmings; 50 braiders. (To install machinery for making knit neckties.) ....
Philadelphia. Justice, Geo. F., Co.; 454-456 N. 10th St.; Passementerie Trimmings. ....
Philadelphia. Rossendale Valley Mills, Inc.; 2nd and Diamond Sts.; $100,000; Joseph Ashworth, pres., supt. and buyer; J. A. Lowe, treas.; Silk Plushes; office, 812 Franklin Bank Bldg. (To remove to new location.) 16
Philadelphia. Standard Silk Winding Co.; 1666 Oxford St., Frankford; L. Joynes, supt.; Commission Silk Winding; 4 frames; (E). ....
Ridgway. Ridgway Silk Co.; $30,000; Otto Huber, pres.; Dress and Tie Silks; (S); sell direct. 40
Slatington. Slatington Silk Co.; H. O. Jones, supt. and buyer; Silk Tram Throwing on Commission; 1,000 spindles; (E). ....
Slatington. Wyandotte Silk Co.; Slatington Branch; H. Seltmann, supt.; Silk Throwing; 4,000 spindles; (E). (Branch of S. Bethlehem.) ....
South Bethlehem. Emmerich-Dolson Co.; $20,000; Arthur Emmerich, pres. and buyer; Kenneth Wilbur, treas.; Thrown Silk; sell direct. ....
Tamaqua. Tamaqua Silk Throwing Co.; Broad and Pine Sts.; $10,000; Ernest Muster, pres., supt. and buyer; William Muster, treas.; Silk Throwsters, Organzine and Tram; 6,000 spindles. ....
York. Souter Throwing Co.; Monrow St., West York; $5,000; S. H. Souter, pres., supt. and buyer; Silk Throwing; 4,000 spindles; (S); sell direct. ....

RHODE ISLAND.

Central Falls. Bengal Silk Mills; 114 Hadwin St.; Broad Silks; (S); sell direct. 55

MISCELLANEOUS NEW MILLS.

CONNECTICUT.

New Hartford. Touraine Co.; Laces, Trimmings, etc.; Clarence Whitman & Co., N. Y., interested.
New Haven. Forsyth Dyeing Co.; W. Fitch St.; $53,000; Wm. H. Forsyth, pres.; L. E. Forsyth, treas.; Dyers of Cotton Piece Goods; (S & E).

GEORGIA.

Atlanta. American Tape Co.; 195 1/2 Marietta St.; $50,000; Sims Bray, pres., treas. and buyer; Tapes Made by Sizing; buy cotton yarns.

MASSACHUSETTS.

Lowell. Swan Fabric Co.; $4,000; Geo. A. Lyon, pres.; Danl. O. Swan, treas.; Chas. W. Clark, supt.; Rugs from Cotton and Other Fabrics; (S); sell direct.

MISSOURI.

St. Louis. Lowell Bleachery; experimental plant in operation; if finish secured at Lowell, Mass., can be duplicated, large plant will probably be established here.

MONTANA.

Fromberg. Montana Flax, Fibre & Cordage Co.; $40,000; John G. Clark, pres.; H. L. Barlow, treas.; Geo. Pierson, supt.; Flax and Flax Tow; (S); J. G. Clark, buyer.

NEW JERSEY.

Camden. Asbestos & Rubber Works of America; 11th and Linden Sts.; $75,000; E. H. Garcin, pres.; John M. Scudder, treas.; John Hoy, supt.; Asbestos Sheetings, Packings, Gaskets, Brake Linings, Cloths and Yarns; sell direct, 1782 Broadway, N. Y.; buy raw cotton.
Camden. Peech Sons & Phillips Co.; West and Clinton Sts.; $125,000; F. S. Peech, pres.; F. L. Peech, treas.; C. B. Phillips, supt.; Coning and Mercerizing of Cotton Yarns; 500 winding spindles; 8 quillers; (E); sell direct; buy cotton yarns.
Finderne. Johns-Manville, H. W., Co.; Asbestos Cloth and Rope; expending $2,000,000 for new buildings to consolidate eastern plants.
Paterson. Imhoff-Berg Silk Dyeing Co.; 67-77 Chadwick St.; $25,000; M. Imhoff, pres.; O. Berg, treas.; Dyeing of Fast Blacks on Skein Silks; capacity, 1,200 lbs. daily.
Paterson. Lyons Piece Dye Works; Fifth Ave. and Boulevard; $100,000; Dr. Cadgene, pres., treas. and supt.; Dyeing, Finishing and Printing of Piece Goods; (S).
Paterson. Progressive Silk Finishing Co.; 50-60 Ryle Ave.; $25,000; Gustave Wagniere, pres.; Louis A. Rey, treas.; Finishers of Broad Silk Goods; (S & E).
Paterson. Staple Silk Thread Finishing Co.; Strange Mill: Silk Thread Finishing on Commission.
Plainfield. Rollo Haircloth Co.; 768 North Ave.; $50,000; Wm. Bluchel, pres., supt. and buyer; W. Hamberger, treas.; Haircloth; 10 looms; dye (piece); (E).
Trenton. Scientific Textile Co.; Henry Kellerman, pres.; Converting of All Kinds of Yarns, Winding, Doubling, Twisting, Quilling, Coning, Tubing and Spooling.
Weehawken. Hasco Dyeing Co.; 46 W. 19th St.; $25,000; Dyeing of Artificial and Schappe Silk.

NEW YORK.

Auburn. Auburn Thread & Twine Co., Inc.; $36,000; H. L. Ferris, pres.; Chas. H. Steel, treas. and buyer; Wm. Acheson, supt.; Flax Sail Twines, etc.; 400 spindles; dye; (E); sell thro' agts.
Cold Spring. Glenham Embroidery Co.; McKeel Bldg.; Embroideries; 50 sewing machines. (Branch of Glenham.)
Lockport. Clifford Textile Co.; $40,000; James Clifford, pres. and treas.; James E. Clifford, agt.; L. Z. Edge, supt. and buyer; Linen and Union Towels, Fancy Crashes, Lettered Goods a Specialty; 80 looms; 6 sewing machines; (E).
New York City. Modern Silk Finishing Co., Inc.; 210 Eleventh Ave.; $50,000; William Messmer, pres.; A. W. Buhlmann, treas. and buyer; Finishing of Silks.
Niagara Falls. Niagara Falls Linen Co.; $150,000; John L. Harper, pres.; A. B. Chase, treas.; James

Meiklejohn, mgr.; Napkins, Doilies, Toweling and Similar Goods; 50 looms; bleach and finish; dye; (E); built new brick and concrete mill, with provisions for increase to 100 looms.

Troy. Collar City Finishing Co.; Foot of Glen Ave.; $100,000; Chas. H. and Geo. W. Kavanaugh and J. H. Schaller; Bleaching and Finishing for Collar and Knit Goods Mfrs., also Yarn and Thread Mercerizers; capacity, 50,000,000 yds. of cloth per year.

OHIO.

Cleveland. Cleveland Dye & Bleach Co.; 5827 Broadway; $25,000; John E. Richardson, pres.; C. H. France, sec. and treas.; W. A. Renicke, gen. mgr.; Dye Worsted and Cotton Yarns and Piece Goods.

Cleveland. Erie Dyeing Co.; 1842-48 E. 40th St.; $10,000; H. G. Davenport, pres. and buyer; Ben Haber, sec. and treas.; Dyeing of Cotton and Worsted Yarns in Skeins for the Knitting Trade; (S); capacity, 10,000 lbs. per day.

PENNSYLVANIA.

Easton. Easton Finishing Co.; $15,000; Frederick Haigh, pres.; Thos. Long, supt.; Dye, Bleach, Finish and Mercerize Piece Goods. (Built new mill building.)

Norristown. American Asbestos Co.; Stanbridge and Sterigere Sts.; $60,000; B. F. Evans, pres.; I. C. Weber, treas.; J. G. Tyson, supt. and buyer; Asbestos Yarns, Cloths, Tapes, Linings, Packings, etc.; dye; (E); sell direct.

Philadelphia. Amrein Dyeing Co.; 2622 No. Front St.; Augustus Amrein, mgr.; Fast Colors on Woolen and Worsted Yarns for Knitting and Weaving, also Cotton Yarns, Vat Dyes a Specialty.

Philadelphia. Buffalo Dye Works; B St. below Thayer; A. Musgrave, mgr.; Dyers of Wool, Worsted and Cotton Yarns, Raw Stock and Hosiery; capacity, 20,000 lbs. per day; 100 winding spindles.

Philadelphia. Janero Print Works; 4040 Germantown Ave.; Gustav Prevost, supt. and buyer; Printers of Tops (Vigoureux system), Fast Colors for Men's Wear and Dress Goods Trades; 4 machines; (S).

Philadelphia. Progressive Dye & Finishing Works; Willard St. above Frankford Ave.; John Kaye, treas.; F. H. Birkly, supt.; Dyeing and Finishing of Woolen, Worsted and Cotton Men's Wear and Dress Goods.

Pottsville. Anthracite Bleaching & Dyeing Co.; Anderson St.; $10,000; M. M. Donohue, pres.; M. Meck, treas.; T. P. McMahon, mgr.; Bleaching of Underwear and Hosiery; (E).

Reading. Reading Bleach Works; Lesher & Smith, props.; 316-320 Bingaman St.; Harry L. Smith, supt.; Bleachers of Cotton Piece Goods, Skein and Hosiery Yarns; capacity, 9,000 lbs. per day; A. B. Lesher, buyer.

Reading. Reichard Bleaching & Dyeing Works; Hyde Park; Bleachers of Knit Underwear and Hosiery.

Spring City. Spring City Bleach Works; S. C. Hottenstein, supt.; Bleaching of Knit Underwear a Specialty.

RHODE ISLAND.

Pawtucket. Prospect Finishing Co.; Beveridge Hill Ave.; $100,000; Joseph Quarmby, pres.; Frank G. Rowley, treas. and buyer; Warp Mercerizing, Dyeing and Bleaching of All Yarns.

TENNESSEE.

Chattanooga. Standard Processing Co.; Converters of Cotton Yarns. (Building under construction, 2 stories, 176 by 80 ft.)

Projected Industries

Under this head are enumerated such projects as are now in course of construction, or which in all probability soon will be, but are not sufficiently far advanced to be properly identified in the list of new mills.

COTTON.

GEORGIA.

Chickamauga. Crystal Springs Bleaching Co.; propose to build cotton cloth mill of 10,000 spindles and 800 looms.

Fort Valley. L. A. Abercrombie having plans prepared for 10,000-spindle hosiery yarn mill for making 9s to 13s yarns on cones.

Phelps. F. T. Hardwick, treas., and stockholders of Crown Cotton Mills of Dalton purchased site for 15,000-spindle mill.

NORTH CAROLINA.

Durham. Durham Hosiery Mills; may build 10,000-spindle mill for manufacture of waste yarns.

High Point. Highland Cotton Mills; Hosiery Yarns; 10,000 spindles; to be built by High Point Hosiery Mills, Inc.

WOOLEN.

MAINE.

Corinna. Chas. Greenwood, of Greenwood Woolen Co. of Dexter, reported interested in building new woolen mill here.

MASSACHUSETTS.

Boston. Boston Felt & Rubber Co.; $50,000; Fred'k J. White, Chas. B. Colley and Henry C. Richardson; location not decided; Felt boots and Shoes.

Monson. A. A. Langewald and others interested in establishment of felt manufacturing plant.

Norton. J. A. Middlebrook, formerly with Talbot Wool Combing Co., of Norton, has negotiations in progress for establishment of combing plant at some other place.

NEW JERSEY.

Rochelle Park. Saddle River Worsted Mills Co.; $250,000; R. L. Lindell, pres.; White Flannels and Dress Goods; 100 looms.

KNIT.

NEW YORK.

Kinderhook. Henry Schnapper, formerly treasurer of Kinderhook Ktg. Co., to organize new concern to manufacture sweaters, gloves, toques, etc.

PENNSYLVANIA.

Allentown. Milton W. Kerkeslager, of Philadelphia, reported interested in starting up elderdown department of old Southdown Knitting Co.

Allentown. G. W. Martin, superintendent of Rexall Knitting Co., reported interested in company to take over and operate underwear department of old Southdown Knitting Mills.

Wrightsville. Jos. Black & Sons Co., hosiery manufacturers, of York, considering establishment of branch plant here.

RHODE ISLAND.

Providence. Rhode Island Hosiery Co.; 12 Beverly St.; Hosiery; Saml. Youde interested.

Thornton. National Silk Hosiery Co.; $50,000; Wm. Burton, treasurer of Town of Thornton, interested.

SOUTH CAROLINA.

Columbia. Palmetto Silk Hosiery Co.; $25,000; R. H. Shaw, pres. and treas. (Plans for construction of plant being prepared.)

TENNESSEE.

Chattanooga. Winston Hosiery Mills; Alton Park; Saml. McCracken, supt.; Hosiery.

Riceville. Davis Hosiery Mills of Chattanooga may establish branch here.

Important Changes

COTTON.

ALABAMA.

Selma. Selma Mfg. Co.; J. F. Ames, pres.; Jas. S. Bradbury, agt. and buyer; Osnaburgs for own use; 13,500 spindles; 412 looms. (Purchased and put in operation plant of Cawthon Cotton Mill.)

Uniontown. Canebrake Cotton Mills; $80,000; S. T. Whitfield, pres.; F. Meyer, vice-pres.; A. L. Morgan, sec. (Company organized to take over and operate Ellawhite Cotton Mills.)

CONNECTICUT.

Danielson. Danielson Cotton Co.; authorized capital, $75,000; taken over old company of same name; extensive changes made in plant and old equipment replaced by new looms; operating on plain and fancy goods, with department for manufacture of handkerchiefs.

Plainfield. Lawton Mills Corp. absorbed Plainfield Mills Corp. and capital increased to $2,000,000.

Putnam. Manhassett Mfg. Co.; $175,000; E. V. Livesey, pres.; R. H. Ballou, treas.; Wm. Bamber, supt.; Tire Cloth and Absorbent Cotton; taken over buildings of Monohansett Mfg. Co. and reequipped with new machinery.

Versailles. Kittle, Chas. A.; Absorbent Cotton and Medicated Bandages; 600 spindles; 16 knitting machines; purchased mill of Uncasville Mfg. Co. (Organization not complete, Nov. 1912.)

GEORGIA.

Albany. Albany Cotton Mfg. Co.; $110,000; formed to take over Albany Cotton Mills under reorganization.

Atlanta. Martel Mfg. Co.; $200,000; W. C. Martin, sec.; Fancy Cottons; 10,000 spindles; 300 looms; dye; (S); Farish Stafford Co., N. Y., s. agts. (Purchased plant of Elizabeth Cotton Mills.)

Dublin. Oconee River Mills; W. N. Leitch, pres.; C. H. Peacock, treas.; S. C. Smyly, sec. and mgr.; Sheetings; 8,000 spindles; 225 looms; (S). (Operating old plant of Georgia Cotton Mills.)

Forsyth. Star Cotton Mill; $30,000; R. P. Brooks, pres.; B. F. Hill, Jr., sec. and treas.; Cotton Yarns; 40 sets; 3,124 spindles. (Succeeded Newton-Harp Mfg. Co.)

Griffin. Georgia Cotton Mills; $400,000; Clyde L. King, pres.; Roswell H. Drake, sec. and treas. (Company formed to take over and operate Boyd-Mangham Mfg. Co., Central Mills and Spalding Cotton Mills.)

Senoia. Senoia Duck Mfg. Co.; $100,000; W. A., G. U. and E. P. Robinson; reorganization to put in operation plant of Senoia Duck Mills.

Trion. Trion Co.; $900,000; Benj. D. Riegel, pres. and treas.; Cotton Cloth; 52,000 spindles; 1,400 looms, C. B. Caperton, buyer; Smith, Hogg & Co., N. Y., s. agts. (New company formed to operate plant of Trion Mfg. Co.; $300,000 to be expended for improvements.)

MARYLAND.

Hillsdale. Capital Cotton Mills; $25,000; Otto Goetze, pres. and treas.; E. S. Boteler, gen. mgr.; A. H. Burnham, agt.; J. E. Tucker, supt. (Company organized to take over and operate plant of Ashland Mfg. Co.)

MASSACHUSETTS.

Boston. International Braid Co.; $2,000,000; A. W. Dennis, pres.; John O. Ames, treas.; John R. Dennis, gen. mgr. (Consolidation of Elmwood Mills and Fletcher Mfg. Co. of Providence, Jenkins Mfg. Co. of East Braintree and Standard Braid Co. of Attleboro.)

Gloucester. Linen Thread Co. taken over plant and business of L. A. Burnham & Co.; new line walk, 600 ft. long, under construction.

Methuen. Carribee Mfg. Co. purchased by Edw. Jefferson & Bro. of Phila.; operating, Nov. 1912; undecided as to future.

Sharon. Seamans & Cobb Thread Mills; $50,000; C. E. Eaton, pres.; T. S. Croteau, treas.; purchased and operating plant of Chas. E. Robinson & Co.

MISSISSIPPI.

Batesville. Panola Cordage Co.; $20,000; Wm. H. French, pres.; Wm. Morton French, treas.; H. T. French, mgr. and buyer. (New interests in control.)

Meridian. Lauderdale Cotton Mills; $130,000; H. M. Threefoot, pres.; Marks Rothenberg, sec. and treas.; C. W. Hancox, supt. (Reorganization of Meridian Cotton Mills. Extensive improvements in plant made.)

NEW JERSEY.

Sussex. Anable, A. S.; Turkish Towels and Terry Cloths; 108 looms; bleach, dye and finish; buy 1/14, 1/16, 2/20, 2/30. (Purchased old Sussex Mills.)

NEW YORK.

Pike. Genesee Textile Co.; $35,000; L. A. Mason, supt.; Cotton Plush Specialties; 6 broad and 2 narrow looms. (Succeeded Textile Specialty Co.)

NORTH CAROLINA.

Burlington. King Cotton Mill Corp.; $50,000; H. D. Eichelberger, pres.; Thos. F. Jeffress, treas.; J. G. King, agt. and buyer. (Operating Bellevue Mills No. 1.)

Crouse. Stiraut Yarn Mill; G. W. Stirling, pres. and buyer; D. J. Autry, supt. (Formerly Marcia Yarn Mills.)

Dillon. Dillon Mills; new company formed to take over and operate Maple and Dillon Cotton Mills of Dillon and Hamer Cotton Mills of Hamer.

Haw River. Haw Mfg. Co.; W. E. White, pres.; J. H. White, treas.; 10s and 20s Yarns, Warps, Chains and Beams; 3,600 spindles; (S); dye. (Taken over and operating plant of Trolinwood Mfg. Co.)

King's Mountain. Anna Cotton Mills, Inc.; removing looms, and will change from woven goods to yarns only; 3,000 or 4,000 new spindles to be installed.

Lincolnton. Rolin Mfg. Co.; $12,000; H. S. Robinson, pres. and treas.; J. L. Lineberger, sec. and buyer; Cotton Yarns. (Operating Piedmont Cotton Mills. Added 2,300 spindles and new steam power plant.)

Salisbury. Princeton Cotton Mills Co.; $50,000; M. L. Jackson, pres.; T. B. Marsh, treas.; Table Damasks. (New company operating Grace Mills. Built addition, 56 by 96 ft. Plan to install spinning department.)

Spray. Thread Mills Co.; purchased plants of American Warehouse Co., Lily Mills, Spray Woolen Mills, Rhode Island Co. and German-American Co., of Draper; extensive improvements being made.

Stubbs. Buffalo Mfg. Co.; $100,000; Chas. C. Blanton, pres.; Z. C. Mauney, treas. and mgr. (Reorganization of old company of same name.)

PENNSYLVANIA.

Bradford. Bradford Textile Co.; $25,000; Wm. A. Mundy, pres.; Albert S. Paton, treas.; Thomas Davies, supt. and buyer; Tapestry Portieres, Couch and Table Covers; 20 looms; gas and electric; sell direct. (Business formerly carried on by Thos. Davies at Vineland, N. J.)

Philadelphia. Binder Mfg. Co.; Allegheny Ave. and C St.; $50,000; Jacob Binder, Jr., pres.; Wm. Lentz, treas. (Succeeded Binder, Morrell Co.)

Philadelphia. Quaker Lace Co.; $4,000,000; Jos. H. Bromley, pres.; Henry T. Bromley, treas.; S. C. Snoke, supt. (New company operating Lehigh Mills, 22d St. and Lehigh Ave., and Bromley Mills, 4th St. and Lehigh Ave.)

RHODE ISLAND.

Kenyon. Nottingham & Calais Lace Co.; $150,000; James Gee, pres.; W. D. Sowter, sec. and supt. (Plant formerly occupied by E. Kenyon & Son.)

Westerly. Moore, Geo. C., Co.; J. V. Moore, supt.; Elastic Webs; 1,718 shuttles; (S & E); sell direct; buy 2/24 to 2/80; branch of Worcester, Mass. (Taken over plant formerly occupied by Westerly Narrow Fabric Co.)

SOUTH CAROLINA.

Blacksburg. Iron City Cotton Mills; $45,000; to take over and operate Whittaker Cotton Mill.

Charleston. Royal Mills; $250,000; F. W. Wagener, pres.; R. A. Burris, supt. and buyer; dye; sell direct. (Acquired plant of Royal Bag & Yarn Mfg. Co.)

VIRGINIA.

Norfolk. Norfolk Mattress Co., Inc.; $50,000; Benj. Margolius, pres.; D. L. Margolius, vice-pres.; S. E. Myers, sec. and treas.; Cotton Felt and Felt Mattresses; 4 garnets; 2 pickers; 2 willows; 12 sewing machines; (E). (Purchased and enlarged mattress dept. of Southern Bagging Co.)

WOOLEN.

CONNECTICUT.

Putnam. Waterman, C. F. and P. L.; taken over No. 2 Mill of Putnam Mfg. Co.; to manufacture worsteds.

Winnipauk. Norwalk Woolen Mills Co.; $100,000; Chas. P. Bentley, pres. and treas.; L. A. Anderson, supt.; new company organized to take over and operate Norwalk Mills Co.

MAINE.

Bridgton. American Woolen Co.; Thomas Sampson, supt.; 8 sets; 40 looms. (Purchased plant formerly operated by Forest Mills Co.)

Skowhegan. Wesserrunsett Worsted Co.; $100,000; Blin W. Page, pres.; Edgar B. Moore, treas.; Chas. J. Alexander, mgr. (Taken over business and plant of Marston Worsted Co.)

South Windham. Windham Mfg. Co.; $100,000; Samuel Rindge, pres. and treas.; F. W. Freeman, mgr.; Cotton Warp Shirtings. (Taken over Robinson Mills.)

Waterville. Wyandotte Worsted Co.; purchased plant of National Woolen Co.; operated by Jos. Noone's Sons Co. of Peterboro, N. H.

MASSACHUSETTS.

Boston. United States Worsted Co.; $17,000,000; Andrew Adie, pres.; John Simson, treas.; a consolidation of United States Worsted Co., Lawrence Dye Works and Silesia Worsted Mills; plants to be largely increased; offices, First Natl. Bank Bldg.

Clinton. Queensbury Mills of Worcester; operating worsted drawing and spinning depts. of Victor Mfg. Co.

Hampden. Hampden Woolen Co.; W. B. Clark, pres.; W. J. Granger, treas. and buyer; Carpet Yarns; 4 sets; 864 spindles; dye; sell direct; (W). (Taken over Scantic Mills of E. E. Redden Mfg. Co.)

North Bellingham. Bellingham Woolen Co.; $95,000; A. E. Bullard, pres.; W. W. Ollendorff, treas., agt. and buyer; Ernest Rhodes, supt.; 10 sets; 132 looms; dye; (S & E). (Taken over plant of Charles River Woolen Co.)

Spencer. Bigwood Woolen Co.; $25,000; Mellen H. Albro, pres.; David Bigwood, treas.; Woolens and Union Cassimeres; dye; (S & W). (Purchased plant of Priscilla Woolen Co.)

NEW HAMPSHIRE.

Penacook. Brampton Woolen Co., Penacook Mill; Broadcloths and Ladies' Sackings; 14 sets; 125 looms. (Formerly Concord Mfg. Co. Plant leased.)

Penacook. Harris, Emery Co.; $200,000; Robt. L. Harris, pres. and supt.; A. G. Harris, treas.; Carriage Cloths and Dress Goods. (New company which has taken over Dustin Island Woolen Mills and the J. C. Parker Co. of Queechee, Vt.)

NEW YORK.

Falconer. Simpson, James & Co.; Worsted Yarns. (Formerly Lynndon Worsted Co.)

PENNSYLVANIA.

Bloomsburg. Susquehanna Worsted Mills of Magee Carpet Co., leased by Thos. Williams, formerly pres. and gen. mgr. of Bradford Worsted Spinning Co.

Chester. Providence Worsted Co.; E. Elston, gen. mgr. and buyer; Dress Goods; 40 looms; sell direct, 2600 N. 6th St., Phila. (Leased plant formerly operated by Jas. Irving & Son.)

Philadelphia. Bensdale Mfg. Co.; Jasper and Orleans Sts.; Geo. H. L. Pettie and Ed. S. Rothwell; Dress Goods and Men's Wear; 16 looms; (S). (Operating former equipment of Greenholme Cloth Mfg. Co.)

Philadelphia. Bunting & Heritage; 1202-14 S. 12th St. (Succeeded Persian Mills of Saml. B. Bunting.)

Philadelphia. Lobsitz, Maurice, Mfg. Co.; Germantown Ave. above Broad; $30,000; Maurice Lobsitz, buyer. (Taken over plant of F. W. Walter & Co.)

Philadelphia. Newton, Herbert B.; purchased plant of Balmoral Textile Co., and leased quarters at Kensington Ave. and Venango St.

Philadelphia. Oettel & Pirnay Mfg. Co.; $50,000; Geo. R. Oettel, pres.; Oscar Ludwig, treas.; Edward Pirnay, supt. and buyer. (Succeeded Vervia Worsted Mills. Occupying new quarters at Ontario and B Sts.)

Reynoldsville. Reynoldsville Woolen Co.; purchased by L. Greenblatt & Sons, Inc., of New York.

RHODE ISLAND.

Harrisville. Stillwater Worsted Co.; removed from Greenville and operating in Tinkham Mills, until recently leased by U. S. Worsted Co.

Oakland. Glengarry Mills, Inc.; $40,000; Angus Park, pres.; Dani. P. Warwick, sec.; Woolen Goods. (Operating Whipple Mills under lease.)

Providence. Langford Worsted Mills; formerly Elston Worsted Co.; taken over by Cleveland Worsted Mills Co.; installed additional looms for making fancy worsteds.

Thornton. Priscilla Worsted Mills of Providence; taken over and equipping former plant of British Hosiery Co.

VERMONT.

Ludlow. Ludlow Woolen Mills; leased and being operated by Verd Mont Mills Co. on their lines.

WASHINGTON.

Kirkland. Matzen Woolen Mills; George Matzen, pres., treas. and buyer; J. F. Braillier, supt.; Mackinaws, Blankets and Woolen Suitings; 2 sets; 15 looms. (Operating old plant of Seattle Woolen Mill Co.)

CANADA.

Ontario, Renfrew. Renfrew Textile Co., Ltd.; $50,000; E. T. Carter, mgr.; Woolen Blankets; 2 sets; 12 looms. (Purchased equipment of Lethbridge Woolen Co.)

KNIT.

CONNECTICUT.

Derby. Hartford Knitting Co.; $35,000; John J. Campbell, pres., mgr. and buyer; N. S. Lippett, treas.; Andrew Mitchell, supt.; Men's and Women's Silk and Lisle Hosiery; 115 knitting machines; 25 ribbers; 15 loopers; dye, bleach and finish; (E); sell direct; buy 30s to 80s C. P. and lisle, also silk; office, 686 Main St., Hartford. (Mill formerly occupied by A. H. & C. B. Alling.)

GEORGIA.

Cedartown. Waukesha Mills; $25,000; L. O. Benton, pres.; E. C. Benton, treas.; O. M. Whitbeck, mgr. and buyer; Men's Underwear and Union Suits; 12 knitting and 28 sewing machines. (Plant formerly operated by Cherokee Knitting Mills.)

Rome. Cherokee Hosiery Mills Co.; $60,000; interests connected with Rome Hosiery Mills taken over Cherokee Hosiery Mill and will increase capacity 40 per cent.

ILLINOIS.

Chicago. Chicago Hosiery Mills Co.; 2100 Marshall Blvd.; $15,000; J. N. Heldman, pres.; Isaac Deutch, treas.; H. M. Kahn, mgr. and buyer; Men's, Women's and Children's Hosiery; 30 knitting machines; succeed Eagle Hosiery Mills.

INDIANA.

Indianapolis. Harbottle Knitting Co.; $300,000; succeeds Indianapolis Knitting Co.; production to be increased.

MASSACHUSETTS.

Needham Heights. Carter, Wm., Co.; $2,500,000; Wm. Carter, pres.; Horace A. Carter, treas.; combines business of Wm. Carter Co. and Springfield Knitting Co. of Springfield, Mass.

MICHIGAN.

Bay City. Vassar Knitting Mills; removed from Nassau to larger quarters at 11th and Jackson Sts.; capital increased to $50,000.

MINNESOTA.

Mankato. Mankato Mills Co.; purchased by F. A. Patrick & Co., Duluth; hosiery dept. to be removed to Duluth.

NEW JERSEY.

Camden. Reo Knitting Co.; 818 Division St.; Woolen and Worsted Sweater Coats and Bathing Suits; 22 knitting and 20 sewing machines. (Formerly 212 Church St., Phila. To increase.)

New Brunswick. Kilburn Knitting Machine Co.; name changed to Interwoven Mills, Inc., and capital increased to $1,000,000.

NEW YORK.

Bath. Canasawacta Knitting Co.; Men's Union Suits; 6 knitting and 24 sewing machines; (S); branch of Sherburne, where all business is done. (Formerly Bath Knitting Co.)

Brooklyn. Unity Knitting Mills Co.; 95-97 McKibban St.; D. Sussman, pres.; H. Beerman, treas. and buyer; Sweaters and Sweater Coats; 25 knitting and 15 sewing machines. (Formerly United Knitting Mills of Ross & Beerman.)

Kingston. Kingston Knitting Mills, Inc.; $15,000; Wm. E. Nugent, buyer; Children's Union Suits, Vests and Pants; 24 knitting and 50 sewing machines; (S); sell direct. (Operating Ashokan Knitting Mill.)

Little Falls. Phoenix Underwear Co.; Chas. A. Miller, pres.; John E. McLoughlin, vice-pres. and gen. mgr.; Wm. Shepardson, supt. (Taken over plant of Robt. MacKinnon Co.)

New York City. Bonnem & Co., Inc.; 135th St. and Willow Ave., Bronx; Julius Bonnem, supt. and buyer; Fancy Knit Goods; 80 knitting machines. (Formerly Oppenheimer, Bonnem & Co.)

Utica. Airyknit Co.; $100,000; same officers as Utica Knitting Co.; formed to operate plant of Genessee Underwear Co.

Walton. Southard Knitting Co.; $50,000; organized to take over and operate White Rock Knitting Mills.

NORTH CAROLINA.

Robersonville. Robersonville-Tar River Hosiery Mills; $125,000; J. H. Roberson, pres.; A. E. Smith, treas.; J. T. Lewis, agt., supt. and buyer. (Consolidation of Robersonville Hosiery Mfg. Co. and Tar River Hosiery Mills of Washington.)

Tryon. Tryon Hosiery Mfg. Co.; $60,000; S. M. Robinson, pres., treas. and buyer; W. F. Swanson, supt. (New company operating plant of Tryon Hosiery Co.)

PENNSYLVANIA.

Allentown. Bolich, H. C.; 6th and Lehigh Sts. Ladies' Ribbed Underwear and Union Suits; 12 knitting machines; 4 ribbers; 18 sewing machines; (E) sells direct and thro' agts. (Formerly at New Ringgold.)

Auburn. Auburn Mfg. Co.; $25,000; Willis Rogers, supt. (New company operating Walborn Knitting Mills.)

Bally. Grim, Edwin; new owner of Bally Hosiery Mills.

Birdsboro. Birdsboro Hosiery Mills; Wm. Reed, prop. (Operating in former plant of A. K. Clemmer.)

New Cumberland. Ewing, J. C., Underwear Co.; J. C. Ewing, pres.; H. T. Bayles, treas.; V. O. Schuler, supt.; Ladies' Union Suits and Two-Piece Underwear; 20 knitting and 16 sewing machines; (E). (Taken over plant of Pennsylvania Underwear Co.)

Philadelphia. Beck & Watt; 2707-13 N. Palethorp St.; Women's Fine Gauge Silk and Lisle Hosiery; 44 knitting machines. (Operating former plant of H. L. Munz Co.)

Philadelphia. Delmar Knitting Mills, Inc.; 2nd and Market Sts.; Edward A. Phillips, pres. and mgr.; Sweater Coats. (Succeeded Edw. A. Phillips Co.)

Philadelphia. Florence Knitting Mills; Lehigh Ave. and Mascher St.; purchased by Louis Kempner of New York; business to be continued under old name.

Reading. Ammon, Edward R.; 17 S. Front St.; Women's Cotton Hosiery. (Formerly at Moslem.)

RHODE ISLAND.

Woonsocket. Standard Textile Co.; Hope Bldg.; John T. McKee, treas.; H. C. Barrows, agt.; Fred Proulx, supt.; Men's and Women's Cotton Hosiery; sell direct. (Taken over plant of Taunton Hosiery Co., Taunton, Mass.)

WISCONSIN.

Eagle River. Saxony Knitting Works; Sweaters, Gloves, Mittens and Novelties; 20 knitting machines. (Branch of Appleton. Equipment brought from there. Possible entire plant may be moved.)

Merrill. Merrill Knitting Co.; $15,000; Carl Hendrich, mgr.; Sweaters and Fancy Knit Goods. (Took over Forest City Knitting Co., of Cleveland. May build new brick mill in spring.)

Superior. Superior Knitting Mills; $25,000; J. H. Sorenson, pres., treas. and buyer; Sweater Coats and Full Fashioned Hosiery; 75 knitting and 25 sewing machines; (E); sell direct. (Succeeded Nelson Bros. Ktg. Works, Minneapolis, and St. Paul Ktg. Works, St. Paul, Minn.)

SILK.

CONNECTICUT.

Middletown. Poidebard Silk Co.; leased plant of Woodhouse Silk Co., with privilege of purchase.

MASSACHUSETTS.

Lowell. Morton Mills; Jackson St.; C. M. Whitman, pres.; F. G. Hinsdale (N. Y.), treas.; B. S. Clarke, agt. and buyer; Silk and Cotton Ribbons; Clarence Whitman & Co., N. Y., s. agts. (Formerly at Paterson, N. J.)

New Bedford. Gilt Edge Silk Co.; Israel Kutner, pres.; Morris Finkelstein, treas. and supt.; Philip Dimond, agt. and buyer; Silk Linings. (Leased plant of Crescent Mfg. Co., with option of purchase.)

NEW JERSEY.

Paterson. Collins, P. A.; purchased plant of Colonial Silk Co. at receiver's sale and combined plant at 19 Fair St. with that in Highland Mill, at latter address.

Paterson. Janes Silk Mills Co.; Summer and Montgomery Sts.; $200,000; Broad Dress Silks. (Succeeded Jas. G. Bail.) (Building branch plant at Lackawanna, N. Y.)

NEW YORK.

Boonville. Boonville Silk Mills; Fred M. Buckley, prop.. (Purchased plant of Ludwig Littauer. Enlargements contemplated.)

PENNSYLVANIA.

Allentown. Post & Sheldon Corp., of Paterson; taken over 380-loom plant of Rogers, Thompson, Givernaud Co. at Washington and Meadow Sts., to be operated on broad silks.

Hanover. O'Neill Silk Co.; $30,000; T. J. O'Neill, pres., supt. and buyer; W. P. Devine, treas. (Purchased plant of Hanover Silk Co.)

Kutztown. Dery, D. G., of Catasauqua; purchased plant of Hill Silk Mfg. Co.; will enlarge and improve.

Nanticoke. Everett & Cease Silk Co.; Nathan Everett, pres.; M. A. Cease, treas.; Wm. Hall, supt. (Succeeded A. L. Storms & Co.)

Reading. Stunzi Sons, Ltd. (Operating plant of Steiner & Talcott Silk Co.)

Williamsport. Demarest Silk Co.; Broad Silks; 20 looms. (To remove entire equipment from Paterson.)

Wind Gap. Dery, D. G., of Catasauqua. (taken over former plant of Stewart Silk Co. and will enlarge.)

MISCELLANEOUS.

KENTUCKY.

Covington. Eagle Cordage Mills; $50,000; Chas. C. Chase, pres.; W. W. Ransom, treas. (Succeeded Overman & Schrader Cordage Co.)

NEW JERSEY.

Hawthorne. United Piece Dye Works of Lodi; taken over as going concern the Am. Silk Dyeing & Finishing Co.

Kearny. Barbour Flax Spinning Co., of Paterson, manufacturers of Linen Threads, Nets and Yarns; purchased plant of Marshall & Co.

Paterson. Weidmann Silk Dyeing Co.; purchased plant of Formanns, Stumpf & Sharpe and will continue to operate.

NEW YORK.

New York City. Silk Finishing Co. of America; $1,030,000; a consolidation of the H. W. Boettger Silk Finishing Co., Charavay & Bodvin and Zurich Silk Finishing Co.

Nyack. Peerless Finishing Co.; plant purchased by United Piece Dye Works of Lodi, N. J.

PENNSYLVANIA.

Philadelphia. General Processing Co.; Amber St. and Allegheny Ave.; succeeds Dragon Dye Works; purchased property at Trenton Ave. and Collins; to be remodeled for use in conjunction with present plant.

RHODE ISLAND.

Central Falls. Glenlyon Dye Works; Yarn Dyeing Dept.; operating in former quarters of the Samoset Co.

Pawtucket. Acme Finishing Co.; $225,000; Frank H. Cranston, pres.; J. E. Judson, treas.; Alfred L. Lustig, gen. mgr. (Purchased plant of Harrison Yarn & Dyeing Co.)

Enlargements and Improvements

COTTON,

ALABAMA.

Cordova. Indian Head Mills of Alabama; installed new preparatory machinery and 406 36-inch looms.

Eufaula. Cowikee Mills; made addition of 8,000 spindles and improvements in power equipment.

Prattville. Prattville Cotton Mills; built new slasher room, also cloth room and office building, and installed new cards and drawing frames to replace old equipment.

Roanoke. Handley, W. A., Mfg. Co.; built addition, 100 ft. long, to be equipped with 65 looms.

Shawmut. Shawmut Mills; added 5,500 spindles, 36 cards and other preparatory machinery, new looms and electric power equipment.

CONNECTICUT.

Ansonia. Ansonia O. & C. Co.; built new 5-story concrete factory building.

Bridgeport. Bias Narrow Fabric Co.; building new brick mill giving 25,000 ft. additional floor space.

Bridgeport. Henkels, Alb. & E.; completed 2 1/2-story addition, 66 by 188 ft.

Fitchville. Palmer Bros. Co.; building 3-story brick addition, 90 by 175 ft.

Killingly. Attawaugan Co.; completed construction of new weave shed, 178 by 106 ft., to be equipped for weaving fancy cotton goods.

Killingly. Killingly Mfg. Co.; building new 2-story weave shed, 200 by 210 ft., to house equipment of 850 new looms.

Willimantic. Pollack, Max & Co.; built 3-story addition, 50 by 104 ft., doubling capacity.

GEORGIA.

Atlanta. Exposition Cotton Mills; installed 16,000 additional spindles and 400 new looms.

Atlanta. Fulton Bag & Cotton Mills; expending $15,000 in improving spinning department of No. 1 Mill.

Augusta. Sibley Mfg. Co.; installed 150 new automatic looms, also new water-wheel and humidifying apparatus.

Augusta. Sutherland Mfg. Co.; installed new weaving department of 144 looms for making sheetings, ducks, etc.

Columbus. Bibb Mfg. Co.; built addition 212 by 100 ft. and equipped with looms for making tire fabrics.

Columbus. Columbus Mfg. Co.; made addition of 15,000 spindles and 400 looms; also of 1-story building, 60 by 250 ft., to be used as cloth room.

Columbus. Swift Spinning Mills; 3,000 new spindles being installed and a further addition of 10,000 considered.

Conyers. Milstead Mfg. Co.; built addition 32 by 50 ft. and equipped with 600 spindles and 10 looms for making heavy ducks.

Eatonton. Imperial Cotton Mills; building addition to double capacity.

Newnan. Newnan Cotton Mills; installed 13,312 additional spindles and 17 new electric motors.

Villa Rica. Villa Rica Cotton Oil Co.; increased equipment to 5,000 spindles, doubling capacity.

MASSACHUSETTS.

Fall River. Standard Fabric Co.; built new addition, ∞ by 20 ft.

Fall River. Troy Cotton & Woolen Mfg. Co.; building new boiler house, 72 by 45 ft., to be equipped with four boilers of 1200 h. p. each.

Fitchburg. Grant Yarn Co.; built 3-story addition, 70 by 76 ft.

Fitchburg. Parkhill Mfg. Co.; built 4-story addition, 100 by 137 ft., for finishing, manufacturing and storage purposes.

Housatonic. Monument Mills; capital increased from $50,000 to $500,000; new electric power equipment installed.

Lowell. Hamilton Mfg. Co.; built new mill, installed 1,200 looms.

Salem. Naumkeag Steam Cotton Co.; will build new weave shed to give 50,000 additional feet of manufacturing space; contract for foundation let; superstructure to be built in spring.

West Warren. Warren Cotton Mills of the Thorndike Co.; contract awarded for large new weave shed; new cloth room and repair shop completed and 112 new looms installed.

MISSISSIPPI.

Stonewall. Stonewall Cotton Mills; built new dye house, 50 by 236 ft., and new finishing room, 41 by 128 ft.

NEW JERSEY.

Florence. Florence Thread Co.; building new dye house, 125 by 30 ft., also small 2-story store house; spooling, dressing, tubing and coning departments increased.

Passaic. Brighton Mills; building new weave shed to cost $65,000 and to be equipped with 100 looms for manufacture of special fabrics.

NORTH CAROLINA.

Asheville. Asheville Cotton Mills; made improvements costing about $50,000, including dye house and houses for operatives.

Concord. Franklin Cotton Mills; built and equipped new 3-story brick mill.

Gastonia. Flint Mfg. Co.; built addition and installed 1,000 new spindles, combers, speeders, etc.

Granite Falls. Granite Falls Mfg. Co.; added another story to main mill, increasing capacity 75 per cent.

Hickory. Ivey Mill Co.; added 7,680 new spindles, with preparatory equipment.

Monroe. Monroe Cotton Mills; added 4,968 new spindles and 60 looms.

Randleman. Deep River Mills, Inc.; building 2-story brick dye house, 40 by 80 ft., and $60,000 electric power plant.

Rockingham. Ledbetter Mfg. Co.; erected new mill building, 2 stories high, 75 by 150 ft., equipped with 2,500 spindles and preparatory machinery.

Rockingham. Pee Dee Mfg. Co.; built addition; equipped with 2,800 spindles and 136 box looms.

Rockwell. Barringer Mfg. Co.; work started on addition to double capacity.

Shelby. Ella Mfg. Co.; built addition to contain 5,200 additional spindles and 126 automatic looms.

Statesville. Paola Cotton Mills; contract awarded for 128-foot brick addition to provide space for 5,000 to 6,000 additional spindles.

Thomasville. Amazon Cotton Mills; built addition, 100 by 125 ft., equipped with 6,000 spindles and preparatory machinery.

RHODE ISLAND.

Knightsville. Caldwell Mfg. Co.; building 3-story addition to allow of increase in production of flexible tubing department.

Lonsdale. Lonsdale Co.; rebuilding section of No. 4 Mill containing slasher and picker room equipment and awarded $60,000 contract for improvements in bleachery department.

Pawtucket. Dexter Yarn Co.; building extension to plant 60 ft. long, to increase all departments.

Pawtucket. Greene & Daniels Co., Inc.; $400,000; Clark W. Holcomb, pres.; Henry C. Dexter, treas.; Chas. E. O'Gara, supt.; reorganization of Greene & Daniels Mfg. Co.; building additions, 67 by 99 ft., 2 stories high, and 34 by 104 ft., 1 story high, to contain machinery for making tire fabric yarns.

Pawtucket. Hope Webbing Co.; building new dye house for skein yarn dyeing, 90 by 42 ft., 3 stories high, new power plant, 80 by 44 ft., and storehouse, 127 ft. long and 3 stories high.

Providence. Interlaken Mills; built new weave shed, increasing equipment to 35,000 spindles and 800 looms.

Warren. Cutler Mills; George S. Collins, formerly of Danielson, now interested; 4,000 spindles for making new line installed.

SOUTH CAROLINA.

Anderson. Toxaway Mills; building extension to mill, 284 by 106 ft., and new warehouse, 100 by 50 ft.; contracts let for 10,000 new spindles and 240 looms.

Chester. Wylie Mills; improvements costing $250,000 made in changing from yarn to fancy cloth mill.

Clover. Clover Cotton Mfg. Co.; rebuilding No. 1 Mill destroyed by storm.

Greenville. Brandon Mills; capital increased to $1,500,000; 10,000 spindles and 200 looms to be added to equipment.
Greenville. Camperdown Mills; built addition to dye house, 30 by 40 ft., and installed 1,500 additional spindles.
Greenville. Carolina Mills; building addition, 2 stories high, 230 by 105 ft.; equipment to be increased by 12,000 spindles and 350 looms.
Greenville. Woodside Cotton Mills Co.; capital increased to $1,750,000; contract awarded for 170-foot addition; equipment to be increased by 27,000 spindles and 650 looms.
Greenwood. Greenwood Cotton Mills; capital increased to $900,000; built 130-foot extension to plant and installed 12,000 additional spindles.
Liberty. Liberty Cotton Mills; purchased by J. M. Geer and will be operated as Easley Cotton Mills No. 2; 12,000 spindles and 300 looms to be added.
Pickens. Pickens Mill; built 85-foot addition and installed 6,000 new spindles and 160 looms.
Rock Hill. Highland Park Mfg. Co.; built extension to mill and equipped with 8,000 new spindles and 125 looms.
Ware Shoals. Ware Shoals Mfg. Co.; building 3-story reinforced concrete addition.

TEXAS.

Cuero. Guadalupe Valley Cotton Mills; built new warehouse, 100 by 100 ft. and extension to mill, 50 by 60 ft.
Denison. Denison Cotton Mill Co.; installed 2,000 additional spindles, 50 looms and cards.
McKinney. Texas Cotton Mill Co.; building addition; 5,000 additional spindles and 160 looms, doubling capacity.

WOOLEN.

CONNECTICUT.

Bozrahville. Gilman Mfg. Co.; shoddy manufacturers; rebuilding burned plant and will equip with new machinery.
Bridgeport. Salt's Textile Mfg. Co.; built new weave shed, saw-tooth roof and concrete floor, 100 by 165 ft.
Shelton. Blumenthal, Sidney & Co.; built new 2-story addition, 100 by 150 ft., giving 100,000 sq. ft. additional floor space.
Stafford Springs. Rhode Island Worsted Co.; added 40 new looms to equipment.
Stafford Springs. Warren Woolen Co.; built new 2-story brick storage house, 136 by 53 ft.

KENTUCKY.

Louisville. Louisville Woolen Mills; installed 24 new broad looms, beginning movement to replace all old equipment with new.

MAINE.

Corinna. Burrill & Clark; built addition, 32 by 135 ft., increasing equipment to 54 looms.
Limerick. Limerick Mills; built 50-foot addition, 3 stories high, and installed 1 000 additional spindles.
Lisbon Falls. Worumbo Mfg. Co.; built 4-story addition and installed 2 new sets of cards and 16 looms; increased power department and dye house.
Springvale. Springvale Spinning Co.; capital increased to $300,000; building 75-foot addition to about double capacity.

MASSACHUSETTS.

Amesbury. Merrimack Hat Co.; built new dye house and installed four new sets of cards.
Caryville. Taft Woolen Co.; building addition to double capacity of dyeing department.
Cherry Valley. Valley Woolen Mill; installed additional looms and changed from steam power to electricity.
Fitchburg. Star Worsted Co.; building 3-story addition to relieve congestion in all departments.
Holyoke. Germania Mills; added two stories to spinning mill, 120 by 182 ft.
North Chelmsford. Silesia Worsted Mills of U. S. Worsted Co.; purchased real estate of Chelmsford Foundry Co. and awarded contract for 3-story additions approximating 200 by 50 ft.
Quinapoxet. Taylor & Bell; installed 28 new looms.
Uxbridge. Uxbridge Worsted Co.; built 3-story addition for finishing department, also addition for dye house.
West Rutland. Daniels Worsted Mills; building 3-story addition; equipment at Worcester to be moved here and that plant discontinued.

MICHIGAN.

Romeo. Rumsey, W., Co.; erected 2-story brick building, 40 by 100 ft., for office and warehouse purposes and sorting room.

NEW HAMPSHIRE.

Claremont. Roberts, John; erecting new building, 38 by 60 ft., 3 stories high, and enlarging boiler house by addition 60 by 60 ft.

NEW JERSEY.

Camden. Salisbury Worsted Mills; occupying new 2-story and basement building, 155 by 42 ft., with increased capacity.
Little Falls. Beattie Mfg. Co.; building extension to main mill, increasing Axminster department and installing special dyeing equipment.

NEW YORK.

Jamestown. Odsonia Mills; added one new set of drawing and 8 new spinning frames and enlarged winding and spooling departments.
Yonkers. Smith, Alexander & Sons Carpet Co.; building 4-story mill, 190 by 74 ft.

OHIO.

Cleveland. Cleveland Worsted Mills Co.; building 5-story extension, 50 by 80 ft., to burling and mending department.

OREGON.

Portland. Multnomah Mohair Mills; erected new 2-story building, 85 by 200 ft., increasing all departments.

PENNSYLVANIA.

Philadelphia. Andrews Mill Co., Frankford; completed 4-story addition, three floors, for additional manufacturing space.
Philadelphia. Bush & Terry; Jasper and Thayer Sts.; built 4-story addition, 45 by 150 ft., and increased equipment to 100 looms.
Philadelphia. Krook, Robert; Walnut Lane, Manayunk; erecting new building on land purchased on Main St. and will move plant on completion.
Philadelphia. Wolstenholme, Thos., Sons & Co.; equipping dye house with capacity of 2,000 lbs. per day.

RHODE ISLAND.

Mapleville. Coronet Worsted Co.; built addition to finishing department, 31 by 176 ft.
Pawtucket. Goff, D. & Sons; building new electric power plant; to build new dye house.

VIRGINIA.

Winchester. Virginia Woolen Co.; added 2 sets cards, 1,440 spindles and 14 looms.

WISCONSIN.

Burlington. Burlington Blanket Co.; erected 2-story concrete building, 180 by 60 ft., to replace one burned and provide for increase in equipment.
Jefferson. Owen, John E. & Son; built 1-story addition, 32 by 50 ft., and installed 1 set cards and 480 additional spindles.

CANADA.

Ontario, Galt. Galt Robe Co.; rebuilding burned plant; to be in operation by Jan. 1; purchased equipment of Frankford Mfg. Co., Phila., previous to fire.
Ontario, Pembroke. Pembroke Woolen Mills; building three additions, largest 100 by 40 ft., and changing to a 3-set mill.

KNIT.

CONNECTICUT.

Addison. Glastonbury Knitting Co.; built two additions to plant, 40 by 45 ft. and 32 by 56 ft., two stories high; capacity increased.
Bridgeport. Mills, W. S., Co.; built 3-story brick addition, 47 by 56 ft., as general enlargement.
Winsted. Winsted Hosiery Co.; built 4-story addition, 39 by 65 ft., to increase picking and spinning departments.

ILLINOIS.

Belleville. Belleville Hosiery Mills; installed 12 new 220-needle hosiery machines and added bleaching department.

Kankakee. Paramount Knitting Co.; built addition; installed 2,000 additional spindles; land purchased for further increase.

Rockford. B. Z. B. Knitting Co.; awarded contract for 10-story factory building of reinforced concrete, most of which will be occupied by the company.

INDIANA.

Fort Wayne. Thieme Bros. Co.; capital increased to $200,000; building 3-story addition to double output.

Fort Wayne. Wayne Knitting Mills, Inc.; purchased Fort Wayne Hosiery Mills, formerly Old Fort Knitting Mills, and will use for knitting only, finishing at main plant; also building addition on lot 120 by 150 ft., to cost $35,000 and contain 300 knitting machines; capital increased $100,000.

MASSACHUSETTS.

Boston. Ipswich Mills; new mill building at South Boston plant, cost about $55,000.

Lowell. Shaw Stocking Co.; installed new 1,000 h. p. steam turbine; practically all machinery now operated by motor drive.

Springfield. Potter Knitting Co.; contract awarded for new brick and concrete factory building, 184 by 62 ft., 6 stories high, to cost $115,000.

Wakefield. Harvard Knitting Mills; built new brick addition, 180 by 90 ft.

MICHIGAN.

Adrian. Adrian Knitting Co.; built new storehouse, 30 by 110 ft., bleach house equipped for capacity of 10,000 lbs. per day and plant equipped with automatic sprinkler system.

MINNESOTA.

Minneapolis. Minneapolis Knitting Works; capital increased to $150,000, and contract awarded for 3-story brick addition to double capacity.

NEW HAMPSHIRE.

Lakeport. Wood, H. H. & Co.; built 50-foot extension to mill and added 4 sets of cards, 4 mules and new knitting machines.

NEW YORK.

Amsterdam. Chalmers Knitting Co.; building new 4-story and basement mill, 2-story office building and dye house, giving 120,000 additional feet of manufacturing space.

Buffalo. Monarch Knitting Co.; building new 4-story mill, 50 by 200 ft.; plans for spinning mill and dye house being considered.

Gloversville. Fulton County Silk Mills; building 2-story brick addition, 50 by 50 ft.; new knitting machines to be added to equipment.

Johnstown. Johnstown Knitting Mill Co.; building new brick and concrete addition, 40 by 70 ft., for dry room and dye house; old dye house to be equipped with machinery, increasing production 300 doz. daily.

North Tonawanda. Niagara Silk Mills; building new 3-story addition, 200 by 220 ft., to increase capacity 50 per cent.

Norwich. Norwich Knitting Co.; capital increased to $150,000, removed to larger quarters, formerly occupied by Erskine Ribbon Co., and installed additional equipment.

Perry. Perry Knitting Co.; built 70-foot addition for dyeing and finishing; work started on further addition, 50 by 96 ft.

Troy. Wright's Health Underwear Co.; building reinforced concrete addition to Aetna Mill at cost of $33,000; second addition planned.

NORTH CAROLINA.

Albemarle. Lillian Knitting Mills; built 3-story addition, 50 by 60 ft., doubling capacity.

Burlington. Daisy Hosiery Mills; built brick and concrete addition, 2 stories and basement, 70 by 40 ft., to contain 34 new knitting machines.

Burlington. Sellers Hosiery Mills; added 33 knitting machines, former equipment of W. J. Thompson & Co.

High Point. Durham Hosiery Mills; built 2-story addition, 90 by 100 ft., to be equipped with knitting machinery.

Kernersville. American Hosiery Mill Co.; $125,000; reorganization of American Hosiery Mill; plant burned in April rebuilt.

Newton. Fidelity Hosiery Mills; building new brick mill, 2 stories high, 50 by 100 ft., to replace old plant.

Statesville. Bradford Knitting Mill, Inc.; installed bleaching plant and additional knitting machinery for high grade goods.

OHIO.

Cleveland. Cleveland Knitting Mills Co.; built new 4-story reinforced concrete building, 13,000 sq. ft. to each floor.

Toledo. Dolphin Hosiery Co.; capital increased to $50,000; building new factory at Mulberry and Summit Sts., to be completed Jan. 1.

PENNSYLVANIA.

Allentown. Hunsicker, Good & Co.; installed knitting machines for manufacture of knitted neckties.

Bechtelsville. Kutz Knitting Mill; installed 50 new knitting machines.

Carbondale. Carbondale Knitting Mills; capital increased to $125,000 and plans prepared for new mill, 40 by 250 ft.

Easton. Chipman Knitting Mills; new dye house, 100 by 110 ft., for yarn and piece dyeing; increased yarn department.

Middletown. Romberger, H. A., Mfg. Co.; built addition to plant and installed 150 new knitting machines.

on. West Branch Knitting Co.; adding 40 knitting and 100 sewing machines, to be operated on underwear.

Norristown. Rambo & Regar, Inc.; building 4-story concrete addition, 62 by 103 ft.; added manufacture of knitted neckties.

Philadelphia. Aberle, H. C. & Co.; Clearfield and A Sts.; new concrete building, 80 by 195 ft., to be completed Jan. 1; will double capacity.

Philadelphia. Brown Knitting Co.; expending $35,000 in improvements, including 6-story addition to plant.

Pottsville. Adcock, J. C. & Bro.; hosiery manufacturers; reported installing machinery for manufacture of women's underwear.

Reading. Hampden Knitting Mills Co.; increased equipment by installation of 50 new knitting machines.

Reading. Wentzel, H. V., Knitting Mills; equipped new department for manufacture of ladies' and children's high grade underwear.

Scranton. Lackawanna Mills; built addition, 130 by 65 ft., for increase in dyeing department.

Shamokin. Shamokin Knitting Mill; new dyeing and finishing plant planned, 25 by 60 ft., 3 stories high.

Wernersville. Wernersville Hosiery Mills; built 2-story and basement dye house, 38 by 70 ft; output largely increased.

Williamstown. Unrivaled Hosiery Mill, Inc.; built new mill, 40 by 90 ft., 3 stories high to be equipped for manufacture of underwear in addition to their lines of hosiery.

York. Diamond Mill of Pennsylvania Textile Co.; being equipped with knitting machines for knitted silk neckties; looms removed and manufacture of woven goods discontinued.

TENNESSEE.

Rockwood. Rockwood Mills; erecting new mill building, 2 stories high, 100 by 167 ft., to contain 124 new knitting machines and dyeing and finishing equipment, doubling production.

South Pittsburg. Aycock Hosiery Mills; building addition to contain new equipment, including 100 footers, 220 ribbers and 30 loopers; may change to finer grade of goods and install new finishing department.

WISCONSIN.

Neenah. Jersild Knitting Co.; contract awarded for new 3-story fireproof mill, 30 by 120 ft., to double capacity.

MISCELLANEOUS.

MASSACHUSETTS.

Fall River. Crystal Spring Dyeing & Bleaching Co.; John Thwaites, treas. and gen. mgr.; bleaching extended to all lines white finishes; mercerizing department added, also equipment for dyeing fine cotton goods.

NEW YORK.

Newburgh. Newburgh Bleachery; built additions for dyeing cotton piece goods in addition to bleaching.

THE SOUTHERN TEXTILE ASSOCIATION

The fourth annual meeting of the Southern Textile Association was held at Chattanooga, Tenn., on Nov. 29 and 30. At the first session the Association was welcomed to Chattanooga by Mayor T. C. Thompson, the response to the Mayor being made by Arthur M. Hamilton, manager of the Lowe Mfg. Co., Huntsville, Ala. The objects of the Association are educational and social and accordingly the program of the Chattanooga meeting provided for the discussion of technical questions relating to textile manufacturing. The first paper to be read was by Dr. E. H. T. Foster, industrial secretary of the Charlotte (N. C.) Young Men's Christian Association, who spoke on welfare work as related to mill efficiency:

THE RELATION OF WELFARE WORK TO EFFICIENCY

By DP E. H. T. FOSTER, Industrial Secretary Y. M. C. A., Charlotte, N. C.

Our cotton mill Y. M. C. A.'s are promoting night classes offering general and special courses. A man capable of reading and writing is more valuable to the mill and himself and family than one who cannot. One of several recent cases in which these classes put a young man in line for a 50 per cent. increase in wages in four months' time proves this statement. To see men recently unable to recognize a letter reading the newspapers as a result of a short course in the night classes proves their usefulness.

Many mills have adopted the policy of promoting their own men to positions of authority such as second hands, overseers, superintendents, etc. The night classes dealing with the practical work of the mill hasten such promotions and render them less hazardous to the parties concerned by equiping the men with the practical knowledge they need in their work.

Such classes as designing and special calculations adapted to weaving and spinning problems not only make the student more efficient but develop in him greater respect and interest in the textile industry —changing him from an automaton to a thinker. He mixes brains with his work.

A class of eleven studied designing at a Y. M. C. A. night school (course of thirty lessons) and of the eleven six received promotion within four months. A member of another class writes, "The night classes at the Y. M. C. A. have made me ambitious. Since attending them I have been promoted from loom fixer to second hand. The desire to read cheap literature has been destroyed." Another writes, "I have worked in the mill fourteen years without taking any interest in my work. The good work of the Y. M. C. A. night school got me started. I was promoted from fixer to second hand which position I held two years, was then promoted to a better job as designer. I cannot say too much about the night school." A weave room boss who is teaching designing and calculations in a Y. M. C. A. night school said recently that, were it not for the opportunity this class offers to instruct the men in his room about the problems that are daily arising he could not run the room satisfactorily. Another says, "I owe my job to the practical work taught at the Y. M. C. A. night school." To get men to think less about how to shirk a duty and think more about doing good work in the mill, they have to be put in line of promotion. Ambition must be fired within them. These educational classes go far toward lifting a man's horizon and making him feel that there is a chance for him to rise in the industry.

By adding education and especially that kind which deals with the practical work of an industry a big step is taken toward efficiency. Our bodies are so constituted that we tire of doing one thing all the time and work soon becomes more or less automatic. This means that the higher power, the brain, that controls life and activity is less active. Monotony soon undermines a strong, healthy body and renders a trained mind less a factor in production. Monotony leads to dissatisfaction; dissatisfaction leads to carelessness and inefficiency; carelessness and inefficiency soon lead to differences with the overseers which ultimately means that the family moves to another mill village.

The session on Nov. 30 began with a short address by Gannett Andrews, treasurer of the Richmond Hosiery Mills, Rossville, Ga., on efficiency in manufacturing. Then came the reading of the following papers: System in the Weave Room, by J. H. Bagwell, Huntsville, Ga. Piece Work in the Spinning Room, by P. A. Smith, Atlanta, Ga. Drafts in the Card Room, by D. E. Trask, East Lake, Tenn. System and Cost in the Repair Shop, by Richard Thirsk, Cordova, Ala.

During the afternoon many of those in attendance at the meeting availed themselves of the opportunity to visit the points of interest in and near the city of Chattanooga, and in the evening the meeting was brought to a close with a smoker, which was well attended and thoroughly enjoyed by all.

SYSTEM IN THE WEAVE ROOM

By J. H. BAGWELL, Huntsville, Ga.

It has always been a puzzle to me why mill managers are ever ready to install labor saving and cost reducing machinery and then go on with the same old system of waste and inefficiency in the mill, and let the machine be ruined by the lack of system and care. They are wise on the purchase but they are foolish on the care. Many times good machinery is condemned not because of any fault of the machine, but on account of personal preju-

dice and the lack of efficiency on the part of the superintendent or overseer in charge of the mill.

Most mills have elaborate and efficient system in the office for cost keeping, cost finding, etc. They can tell you in an instant what their goods are costing them, what their supply cost is and the amount of waste that is reported (and there are thousands of dollars worth that are not reported), but ask them why their cost is what it is, and why their supply cost is so high, and why their waste and seconds are greater than they should be, and see what the reply will be.

Why not install system of the right kind and efficiency in the mill as well as the office? Some mills have fine systems installed in their mills by practical men who know the business, and know that no system will work itself without the co-operation of every individual that makes up the room force. Others have so called systems in their mills, devised by men who slid in at the top, instead of coming up from the bottom. These systems usually are largely bunk; they are top heavy; they do not square; they are elaborate and complicated "form" structures instead of practical plans, founded on common sense suited to the comprehension of the average mill operative who wants to know and must understand them. He is the man on the job, and anything that shoots over his head is a dead letter. A man does not need to go inside a mill to size up the efficiency of the plant and the men in charge. A trip through their waste house and around their scrap pile will tell the tale. A man who is careful about his waste is sure to be careful about the efficiency of the plant and the quality of his production.

Having good machinery and efficient overseers is not all that is required to make a mill a success. The management and superintendent as well as the overseers must strive to make working and living conditions such as they themselves would be willing to live or work under. They should not consider their obligation filled simply by passing out the wages earned every week or two. It takes more than good wages to hold help and the sooner some mills realize this the better off they will be. One mill does not need to pay better wages than the other to keep plenty of good help, but they must make working and living conditions better than the other fellows.

What are the conditions we find in the different weave rooms? We find just as many different conditions as we find weave rooms, and they must be handled in as many different ways. A man in taking charge of a weave room should spend much time for the first few days in the cloth room getting at first hand the defects in the cloth that would require his first and immediate attention, then proceed in the weave room, not expecting to find a bed of roses, but to discover for himself any defects that may exist, and demonstrate by changes and improvements that he is going to better the working conditions. Let it be understood that the changes are to be made in a business way and with an eye single to justice to all and special favors to none. This not only gets the help with the overseer, but fosters confidence and disarms distrust. An overseer must train his second hands and section men up to the highest point of efficiency and then stand behind them to the limit of consistency and make everyone in the room.

In a large weave room there are difficulties continually arising that not only require skill and knowledge to overcome, but also strong determination and diplomacy. The overseer should be a leader and never a driver. The success of a weave room not only depends upon the superintendent and overseers, but the cooperation of the overseers. The weave room is the one room every man should work for, and there must be harmony, honesty and team work among the overseers if the mill is to be successful In face of all this how often we find instead of team work, obstructive tactics among the overseers. To "put one over" the other fellow is more important in their minds than the success of the mill. Often this is done with the full knowledge of the superintendent. A spinner in order to gain his point will resort to ways that are dark, knowing full well what it means to the weave room and the company's welfare. A superintendent should get his overseers together each day and have them report any troubles that may arise. If any of his men has a complaint to make about what he is getting from the other departments, let him make it then and there. If the other fellow has an excuse to make, let him make it, but there should be a poor market for excuses, and the superintendent should have all his men understand that it is not a personal matter, but a matter of business, and that they are all to work for the same end, the success of the entire plant. A superintendent should not tolerate touchiness or friction among his overseers; his motto should be, get together or get out, and it would only be a little while until it would become a personal honor between the overseers to deliver the work to the other fellow in the best possible condition. Things will then move as they never moved before and in a short while he will have system and efficiency in the mill equaled by few and excelled by none.

DRAFTS IN THE CARD ROOM, ESPECIALLY RELATIVE TO THE DRAWING FRAMES

By D. E. TRASK, Chattanooga, Tenn.

Doublings remedy bad piecings, length of light strands caused by uneven laps and by laps running out and the new lap replaced, also the light work caused by the stripping of the card. The doublings have also a large tendency in making even and uniform yarn. It often happens, and is a rule, generally, that the carder cannot arrange his drafts so as to be the best theoretically, as each process must keep up with the other, and the draft must be so arranged that the production must balance, each with the other, of the different processes. And in so balancing the different processes, the drafts are often excessive, to the detriment of good work and even yarn. The question is, which is excessive draft?

This is a question that has a broad field of opinion, and while I will not even try to lay down a rule, which is next to impossible, I will express my views and beliefs. I am a firm believer in short drafts and enough machinery in the different processes for the making of good yarn. For the last few years much of our cotton has become

shorter. The cotton crop of 1911 has been proven by statistics to have contained a larger percentage of waste than for any previous year. But we still adhere to our same drafts, to the detriment of the quality of our yarn. And it is impossible to have a fixed rule for drafts for the several classes of goods, yarns and cotton used. In treating this subject I will take, for illustration, the making of yarns, from 10s up to 24s, with the required number of machines in the different processes to give the finished production required, using good middling North Georgia cotton.

Starting with 11 ounce lap and a draft of about 85 on the cards will give us a 52 grain sliver, and with three processes of drawing, with a draft of about 4.60 on the back drawing, or first head; 5.60 on the middle or second head, and 5.96 on the finisher. This will give about a 60 or 62 grain sliver for the slubbers, making a one-half hank slubber roving. This keeps the draft within the limit of four, which I think never should be exceeded on a slubber.

On the intermediates make a one hank, and a one and one-half hank roving. This keeps the draft from four to six for the intermediate and on the finisher speeders a three and five hank roving. This keeps the draft between six and seven. On the spinning make numbers from 10 to 14 from the three hanks, and 15 to 24 from the five hank. This will keep the draft from about 6.70 to 9.70.

The draft should not exceed ten on the spinning frame when running this grade of cotton. In mills where there is no changing from one number to another, the draft could be arranged between the two extremes.

The machinery builders in turning the drawing frames over to the mill have the drafts so arranged that there is a considerable leeway for the draft gear used. We will assume that the right gear is put on and the draft between the second and third rolls is about right. The mill makes changes, different hank card sliver is made, probably heavier, which is generally the way when the call is for more work, and the draft gear is changed on the drawing, and perhaps the draft between the second and third rolls equals or exceeds the draft between the first and second rolls. On the other hand, perhaps the first and second rolls are doing all of the drawing.

Here is a point where it is essential to figure out the intermediate drafts when making a change, and knowing just what the different drafts are between the several rolls. I believe in having a fixed draft for the work, and not to change the draft gear unless by a tooth one way or the other. If a radical change is necessary, redraft the frame and put on gears to make it.

For illustration I will take the finished drawing frame, with the approximate draft of 5.96, leaving out the draft between the front rolls and the calender roll, which we all know is regulated by testing and experience.

We here have the different gearings for a draft of 5.96. We first get the draft constant:

$(22 \times 9) \div (98 \times 68 \times 11) = 9 \div 3332$.

3332 divided by 9 equals 370 draft constant.

Draft constant divided by draft equals draft gear:

$370 \div 5.96 = 62$ draft gear.

We now get draft between first and second rolls:

$(20 \times 28 \times 9) \div (40 \times 32 \times 11) = 63 \div 176$ and $176 \div 63 = 2.80$ draft between first and second rolls.

We will now get the draft between third and fourth rolls:

$(24 \times 40 \times 8) \div (34 \times 24 \times 8) = 40 \div 34 = 1.18$.

We now have the draft between the first and second, and third and fourth rolls. We multiply these drafts together and divide the product into the whole draft and the quotient will be the draft between the second and third rolls.

$3.80 \times 1.18 = 3.30$

$5.96 \div 3.30 = 1.80$ draft between second and third rolls.

The two drafts should be multiplied and the difference divided. Some carders believe in doing most of the drawing between the first and second rolls. I have always adhered to and think it a good rule to have the drafts between the second and third rolls within one or near one as possible of the draft between the first and second rolls.

That is, if the draft between the first and second rolls is 2.80 make the draft between the second and third rolls 1.80, or as near as possible, and the third and fourth rolls as near 1.20 as possible, but not more. Speed of front roll should be 400. With metallic rolls the actual draft is about 9 per cent. more than the figured draft.

In starting a new room or changing the size of the yarn, to get the proper draft for each process, we multiply the hank drawing wanted by the doublings and divide by the hank carding, extract the cube root of this sum, and the result will be the draft for each process to produce the required finished drawing.

Take for example a 60 grain finished drawing sliver to be obtained from a 52 grain card sliver.

We first get the hank drawing:

$8.33 \div 60 = 1.38$ hank drawing.

We then get the hank carding:

$8.33 \div 52 = 1.60$ hank carding.

We assume three process of drawing with a doubling of six. The sum of the doublings are $6 \times 6 \times 6 = 216$, hank drawing.

$216 \times 1.38 = 298.08 \div 1.00$ hank carding $= 186.3$.

Cube root of $186.3 = 5.71$, draft that should be used in each process.

I advocate drawing less on the back drawing, say one less on the back than the middle and having about 0.50 less on the middle drawing than the first drawing or finished.

SYSTEM AND COSTS IN THE REPAIR SHOP

By RICHARD THIRSK, M. E., Cordova, Ala.

A manufacturing method in the mill repair shop is something of a novelty in this section. That it is a satisfactory arrangement if correctly carried out is my belief, and most repair shops of fair size will find it a profitable investment. Of course it calls for a somewhat larger investment in tools than is usually found in repair shops, but that is a minor consideration against the benefits to be derived. There are many jobs that come to the repair shop that must be handled in the usual repair shop style. There are also many jobs that may be profitably handled under manufacturing methods

that will show a large margin of profit over the old methods.

As a rule all repair parts, especially for looms, may be made up in sufficient quantities to justify the expense of making jigs, thus insuring interchangeability and low cost of manufacture. Take for example a job handled a short time ago. An order came into the shop for 90 draft gears of 40 teeth, 24 pitch. These gears were 2 1/2 outside diameter, 7/8 inch face, 21-23 taper hole. The blanks were chucked in universal chuck in 16-inch turret lathe. The first operation was to drill 21-32 hole; the next to face off one side, which was done with tool in cross slide; third, the hole was reamed with taper reamer, a collar or reamer determining the diameter of hole; the blanks were next keyseated, a 5-32 hole being drilled blank and drifted out with square tool. A hardened steel plug with key was used to finish the blanks, which were pushed into plug, and two cuts taken over the face with roughing and finishing tools held in turret, the sizing blanks without calipering. A cut was next taken across the face making width 7/8 inch, which completed the blank ready for cutting teeth. Teeth were cut on a Whiton hand feed gear cutter, machine being operated by a boy at 75 cents per day The 90 gears were completed in nine hours' actual time, including setting the tools, and the cost figures are as follows:

9 hours for man at 20c.	$1.80
9 hours for boy at 7 1/2c.	.68
	2.48
The blank weighed 88 lbs. at 3 1/2c.	3.08
Cost of the 90 gears	$5.56

The usual cost of these gears is 48 cents each, making a total cost of $43.20, less $5.56, showing a saving of $37.64 on this job.

If these gears had been made by the usual method; that is, drilling the hole and reaming by hand, then driven on mandrel and finished in engine lathe, calipering to size both diameter and face, it would have taken at least three days, not only showing a greater cost, but also a longer time before they could be put to use.

The writer has for several years been making all repair parts for 800 looms, employing this method, and finds the cost averages a little over 35 per cent. less than the same parts purchased from the loom makers. The average number of pieces used is 160 per week and the average weekly cost is $17.19, or 2 5/100 cents per week per loom. When purchasing repair parts from the loom makers, using the same amount of pieces, the average cost was $23.20 per week, or a difference of $6.00 per week. All parts are made in quantities just as they would be if made for sale. They are placed in stock and given out as required, and charged against the section using them, a weekly report being made up showing the number of parts used on each section and cost of same. One copy goes on file in office and another copy is given to the overseer, enabling him to get a line on his repair cost and incidentally showing him who is the most efficient section hand. It should be the aim of the up-to-date mechanic to anticipate the needs of the mill, and as far as possible keep repair parts on hand for all needed repairs. I am aware that in a mill of fair size it would preclude the fact of the master mechanic working, as is the custom in some places; but, given the right type of man more can be accomplished by keeping the hands at work than by his doing the manual labor himself. The old saying exemplifies this, "The eye of the master can do more than both his hands."

I can look back some fourteen years when I arrived at a mill that had been running some six months, to take the place of master mechanic. I found a very well fitted-up machine shop, with good modern tools, some of which had never been belted up. There was one man and a boy in the shop. The man was turning some let-off studs for looms, a piece 3/4 inch diameter, 7 1/2 inches long, made from 7/8-inch stock, there being four different diameters on each piece and one end threaded for nut. The workman was making them in the old-fashioned way, cutting off each piece to length, centering and turning them in engine lathe, calipering each diameter and measuring each length. He said proudly that he was making ten each day. Among the tools was a pretty fair 16-inch turret lathe, not belted up or fitted with any tools. After getting this lathe fitted up, this stud job was put on this machine and after tools were set 70 to 75 of these studs were made in one day by the same workman that had been making ten per day, reducing the labor cost on this item from 10 cents to 2 8/10 cents each. As there were about 1,200 of these studs used yearly, this one item alone showed a saving of over $86, and this piece was only one of about 180 pieces per week that were used in this mill. I have in mind now a mill running about 850 modern looms, which is paying out over $3,000 per year for repair parts on these looms. Just compare this with the 800-loom mill previously cited which is making all its loom repairs for approximately $1,000 per year, a difference of $2,000 on looms alone. More than enough to cancel the master mechanic's wages.

A few words in reference to the qualifications of the master mechanic in a modern mill. He should be a thoroughly practical mechanic, able to perform any job that comes to the shop and to do so quickly and well. It is not necessary that he should do so, but to enable him to see that his men are using the best methods and to correct them if found doing otherwise. I have come across cases where the master mechanic was a mere figure head and had to rely entirely upon the skill and judgment of his subordinates. Happily this class of men are rapidly becoming obsolete. He should have a good knowledge of steam engineering, both in practice and theory, also a good working knowledge of electricity, so that it matters not what power is used, his knowledge would be equal to the occasion. All shafting, main belts, and other apparatus used should be periodically inspected to guard as far as possible against a shut down during working hours. Of course there will be accidents and stoppages that every precaution will not eliminate, but a great many may be avoided by a good system of inspection. As a matter of fact the master mechanic should aim to be a preventer of repairs, rather than a repair maker.

In a small mill the question of supplies may very well be handled by the superintendent, but in the larger mills the supplies should be under the jurisdiction of the master mechanic. The writer has had the purchasing and distributing of supplies for the past eight years, and has adopted the following system: A supply room 32 by 48 feet has been fitted up over the machine shop, and is in charge of a competent man who is on duty all day to give out supplies. The card index system is used, there being a card for every article used. On this card is entered the date of receipt of goods, together with invoice price and cost per piece. On the same card is entered from time to time the amount given out, and the party or department receiving it and the cost of same. These cards are footed up every month and a monthly statement made out for the office, showing amount of supplies received, amount given out, to whom given, and cost of same. The supplies on hand are carried forward to another card to be used the following month. It is a very simple matter to ascertain in a very few minutes just what supplies are on hand, how much has been used, and the cost at any time. Our supply room inventories about $5,000 and contains about everything used in a textile plant. Under the system, or rather lack of system, that was in vogue prior to the one now in use, each overseer had a supply room and ordered his own supplies, and in many cases there were plenty of supplies on hand in some rooms, while others were in need but could not get them, as they were being charged against the room ordering them, and the overseer who had supplies would not let another room have any of his.

PIECEWORK IN THE SPINNING ROOM

By P. A. SMITH, Atlanta, Ga.

To establish a "piece rate" for this work it is first necessary to fix a method of recording the "pieces." This may be accomplished by means of a hank registering clock attached to the front roll, in the same manner as we now see on speeders and slubbers. Put a numeral on each frame in the room and on the time sheet. Credit the sides to the spinner by number. Read the "hank clocks" daily and "mark up" hanks run to the spinner who runs the sides.

A test was made at the Fulton Bag and Cotton Mills on paying doffers by the piece. The system inaugurated was to give each doffer a check, with stated value for each box, one frame constituting a box. At the commencement of this test it required the assistance of 24 doffers in one room of 64 frames and 4 doffers on 14 frames in another room at a total cost of $28 per day Under the piece rate basis, 14 filling frames were eliminated and the remaining frames were doffed by 18 boys at an average daily wage of $1.40 per day, or a saving on doffing of $9.60 per week and an increase of 40 per cent. in doffers' wages.

Furthermore the wages paid under the new system enabled us to get a better class of help, as we now pay a man's wage instead of a boy's wage, thereby getting a man's intelligence on the work, which means better work; and, allow me to say, the mill in which I am employed has a percentage of seconds in weave room of less than 1 per cent., traceable to some extent to the better class of work being done in spinning room, as the piece rate system has allowed us to keep a better class of "help" at a less cost per pound. Or, in other words, the "piece rate" system, if intelligently established, will automatically increase the efficiency of your working force, as it opens the way to remuneration for intensive study so as to increase individual capacity.

For instance, I may mention a specific case in my own experience. I have working for me two doffers who have been on their present jobs several years. Prior to the adoption of piece rates on doffing these boys were doffing 18 warp frames, No. 20s yarn, 6-inch traverse, 1 5/8-inch ring, at $1.00 each per day. At present these same two boys are doffing 40 frames and average $12 per week. In this case their wages have been increased 100 per cent., while the cost of doffing has been decreased from 11.1 cents per frame under the old schedule to 10 cents per frame per day under the piece rate system.

But, of greater interest to the company is the fact that these two boys are content to stay on the job, as they now receive pay equal to or above the average day laborer, and this may include street car men and clerks.

As an overseer I find the piece rate system allows me to balance the capacity of the help with the requirements of the machine. Or, in other words, if it requires 90 per cent. of the working capacity of the help to get 75 per cent. production capacity of your machinery you are losing money on machinery investment. While on the other hand, if you are only getting 60 or 75 per cent. working capacity of help to get 90 per cent. capacity of machinery, you are surely badly organized in your labor force, and this condition I find easily remedied by the piece rate system of payment.

I have also found it advantageous to establish a "piece" rate as basis of pay on warpers and creeling warpers and the best way I have found to pay warper tenders is by the warp instead of by the beam. Figure out a rate per warp and keep record of work by issuing a small card with numbers on it, punching out the numerals designating number of yarn, number of warps, and length of warps.

You will find it advantageous to pay for creeling warpers by the 1,000 pounds. This may be done by having a small card with numerals designating number of yarn and the number of ends to each creel. Issue a card to the creeler for every creel tied in and have time keeper check them up at night.

The greatest advantage I've observed in paying for any work by the "piece" is in increased capacity of the help, and by this I do not mean putting forth more physical effort, but rather the piece work acts as an incentive to the individual to eliminate all useless motion and misdirected energy, and your working force will automatically reduce itself. As I found in establishing piece rate on creeling warpers we had 16 machines on coarse numbers, which were being creeled by 4 creelers at $1.20 per day each. The average production was

approximately 100 section beams per week, or 41,000 spools per week to be tied-in. On this estimate a rate of 65 cents a 1,000 was put in effect. Total pay under old schedule $7.20 per week. Total pay under piece rate $6.65 per week. It may be seen that the old rate was more than the new rate per hand for the weekly earnings.

This difference was made because it was seen there was an abnormal rate being paid for this work and it finally worked itself out just as it was figured it would do, which was this way—after the third week, under the new piece rate, three of the best creeler hands asked the privilege of doing all the work, which was just what we wanted. These three hands now have an average weekly pay of $8.50 to $9.00, with this advantage to the company, that there was one hand eliminated and a saving of $2.15 per week in creeling, and we can still keep the places filled more readily because it is easier to employ a creeler at $8.50 or $9.00 per week than it was at $7.20. It has been my experience that paying by the "piece" is just as feasible in the spinning room as it is in the weaving, and just imagine what would happen in your weaving department if orders were issued to pay all weavers by the day.

AMERICAN ASSOCIATION OF WOOLEN AND WORSTED MANUFACTURERS

The annual meeting of this association was held on December 5 at the Hotel Astor, New York. The morning session was called to order by President Porter who delivered a very earnest address on the tariff situation as affecting the wool manufacturing industry. The certainty of the revision of schedule K was admitted:

That the tariff rates relating to the woolen industry will be revised is a conceded fact. It is the general opinion that the quicker this action is taken, the better; provided due care and caution is observed in the process, as it is an old and true saying "Anticipation is more cruel than realization."

After quoting the public statements by President-elect Wilson and leading members of the Ways and Means Committee to the effect that the revision will be made in such a way as not to injure any legitimate industry, President Porter pointed out that the tariff rates provided by the bills passed by Congress last summer were inadequate for the purpose of protecting American manufacturers.

The tariff rates in the woolen schedule under consideration last summer, if enacted, would have been harmful to our industry, and it has yet to be devised and demonstrated, how the plants in this country could operate under the proposed rates. With this being a fact, and the invitation of the party that will be in power next year for us to demonstrate this fact to them, it leaves only one alternative; we must through organized channels, with all fairness and sound arguments present our position, embodying one of the largest, and most important industries in the country. We must further try to obtain public opinion in our favor, by an educational campaign.

President Porter also said that the public sentiment in favor of a revision of the woolen schedule had been based on a misrepresentation of facts.

The late demand for the reduction of tariff rates in the woolen schedule, is based on a misrepresentation of facts. It is the general idea that a reduction will bring the cloth or cloths to the consumer at a lower price. It is an established fact that with the small amount of cloth in a garment, the greatest reduction in tariff yet considered would not figure in the price to the consumer. Let it be firmly established, the cloth manufacturer is not the one to look to by experts on the high cost of living.

The president closed his address with the announcement that he would not be a candidate for reelection.

Following the president's address came the report of Secretary Herbert E. Peabody who called attention to the ease with which changes had been made in the offices of the actuary and credit investigator and gave figures to show the satisfactory condition of the department work of the association.

The report of the executive committee was then read. It referred to the appointment of Richard K. McGonigal as attorney and called the attention of members to the fact that litigants who availed themselves of the legal facilities of the association must bear the expenses of the suit. The report also stated that the executive committee had decided that information concerning the credit of firms should be given to members after the exercise of due discretion on the part of the association's credit investigator and the associate secretary.

The report of the board of directors stated that arbitrators to whom disputed cases were referred by the joint committee of woolen and clothing manufacturers would be left free to act in accordance with their judgment.

After routine business had been transacted the meeting adjourned for luncheon. At the afternoon meeting interesting addresses were made by Richard K. McGonigal, who is in charge of the legal department of the association, and by E. L. McElrath, in charge of the credit department. George H. Williams of H. A. Caesar & Co., then gave an interesting talk on credits.

There was a general discussion of the tariff question and it was the sense of the association that they should get together on the question. The following motion was unanimously adopted:

Resolved. That the president of the association should appoint a committee of six manufacturers composed of three worsted weavers and three carded woolen manufacturers to confer with other associations on the subject of the tariff and report back to this association, either at a meeting, or by mail, not later than January 15.

The question of establishing a legal department was referred to the executive committee with authority to act.

The election of officers and directors resulted as follows:

President, Richard A. Strong.

Vice-Presidents: George C. Hetzel and Albert L. Gifford.

Secretary, Herbert E. Peabody.

Treasurer, Robert T. Francis.

Executive Committee: A. M. Patterson, chairman; George C. Hetzel, Robert T. Francis, Herman J. Waterhouse and John R. Hinchcliffe.

Directors: A. M. Paterson, George C. Hetzel, Robert T. Francis, H. J. Waterhouse, John R. Hinchcliffe, Herbert E. Peabody, A. L. Gifford, Wm. J. Battey, Angus Park, James F. Fisher, Frederic S. Clark, F. W. Freeman, Eli Gledhill, John W. Nary.

The following members were represented at the meeting:

ACTIVE MEMBERS

Appleton Woolen Mills; Ashaway Woolen Company; George Brown's Sons; Charlottesville Woolen Mills; Cocheco Woolen Mfg. Co.; Colwell Worsted Mills; Coronet Worsted Co.; W. J. Dickey & Sons, Inc.; Dunn Worsted Mills; Falls City Woolen Mills; Glenside Woolen Mills; Jos. Greet; Samuel Hird & Sons; H. C. Jones Co.; Lippitt Woolen Co.; Franz Merz; Mystic Manufacturing Co.; Pawcatuck Woolen Mills; Pequea Mills; Pontoosuc Woolen Mfg. Co.; Chas. Porter & Son; Scotia Worsted Mills; Shelbourne Mills; Stillwater Worsted Co.; Strong, Hewat & Co.; Talbot Mills; Tremont Worsted Company; Virginia Worsted Company; Louis Walther Mfg. Co.; Walworth Brothers; Warren Woolen Company; Waterhouse & Howard; Waterloo Woolen Mfg. Co.; Thomas H. Wilson; The Worcester Woolen Mill Co.; Worumbo Company; Yorkshire Worsted Mills; Windham Mfg. Co.

ASSOCIATE MEMBERS

C. Bahnsen & Co.; Cox & Schreiber; W. H. Duval & Co.; B. M. Ewing & Co.; John M. Harris & Co.; Lambert Huntington; Wm. M. Lovering & Co.; George S. Mawhinney; Schefer, Schramm & Vogel; Baruch Wolff & Co.; Stursberg, Schell & Co.

SIZING FELT

Editor Textile World Record:

I would like information on the process of dissolving shellac to make a sizing for wool felt; also on the methods of sizing felt with shellac, glue or starch. Sioux (2191.)

Shellac is easily soluble in spirit and may also be dissolved by boiling in alkaline solutions. Borax, ammonia or soda crystals may be used and borax is to be preferred. The known use of shellac in connection with felt is in the hat trade where it is used to stiffen hat forms. A solution of the consistency of treacle is made with the methylated spirit and into this the hat is dipped. The surplus is wiped off and the hat is put into a stove where the spirit is vaporized and continuously recovered. The hat is left in the open air to lose its odor and is then sandpapered and brushed and blocked to shape. The dipping is done after dyeing and the effect is to make the form intensely hard. The subsequent processes mellow the stiffness.

Without a knowledge of the kind of felt in question or the effect desired it is difficult to give any useful advice. Shellac would not seem an eminently suitable material for treating pieces of felt in continuous machinery and a glue or gelatine size appears to be generally a cheaper and more rational substance to employ. It can be added that efforts to impregnate felt in the tank and squeeze machines used for cloth, have resulted in pulling out the length and contracting the width of the goods inordinately. Obviously the circumstances vary with the kind of felt and degree of impregnation required, but all felts will be distorted more or less by severe treatment. J. Strand.

THE HOME MARKET CLUB

The annual meeting of the Home Market Club was held at the club rooms in Boston on November 20. Addresses were made by President Wm. B. H. Dowse who devoted his attention entirely to the tariff situation as developed by the late election. President Dowse said in part:

We are face to face, then, with another experiment in tariff reduction. That the President-elect already feels the responsibility which such a task involves should encourage the country to hope that some degree of caution and prudence will guide the processes of revision. We have a right to appeal to the majority in Congress, we have a special right to appeal to the Democratic Congressmen from New England to do their utmost to safeguard the industries of the country and the manufacturing enterprises of these great manufacturing States, in order that "a great poverty" may not come again upon the land as it did in '93 or our manufacturing cities teem "with unemployed workingmen."

We believe in the principles for which this club stands, protection for our industries and our workingmen, not as a theory, merely, but as the wisest policy for the nation, whose welfare is the first object of all citizens and all patriots. The facts and the figures to uphold our belief will be presented to the Congress of the United States and we ask of the party in power a thorough and honest investigation of our industries, of the American standard of wages, and of the important issues involved in the proposed revision of the tariff.

At the present time factory employes as a rule in the United States receive in wages from three to five times more than are paid abroad. This showing certainly should justify our past and encourage us to victorious work in the future. All that we need is to present the truth and the people in the end will support the policy of protection. Adequate protection is necessary. A tariff based on the difference in the cost of production abroad and at home is not sufficient. There is a handicap of nearly 10 per cent. on home made goods simply because the American people prefer foreign goods at the same prices. Home made goods still have to be placed on the home market at a cheaper price than foreign goods to move them in competition. We have before us a great opportunity for work. We hope for, and ask the hearty help of all our members.

Secretary Thomas O. Marvin made a report in which he referred to industrial conditions in New England and made the following statement regarding the tariff:

Recognizing that other issues besides tariff were influential in the result of the presidential election this year, it must be conceded by the victorious party that no definite decision on the tariff question has been registered by the voters of the country. Assuredly that plank in the Democratic platform which declared protection unconstitutional has not been indorsed by the nation.

Undoubtedly there are men elate with victory who will go with Gov. Wilson to Washington determined to abolish every vestige of protection and give the country a tariff for revenue only. Other men will rise like Senator Gray in Congress and demand that "the fruit of Democratic promises shall not turn to ashes on their lips." But the most solemn promise of the candidates and the party was that they would not "disturb the industry of the country." With these words still warm upon his lips Woodrow Wilson assumes the solemn responsibility of the presidency. It is our duty to stand by that policy which has built up so marvelously the industries of the country and to so present the facts to Congress that the representatives of the people will safeguard every industry and the welfare of every wage-earner.

After the discussion these resolutions were adopted:

That the President and Secretary of the Home Market Club be instructed to call a meeting of the directors early in December to take such action in behalf of the club to safeguard as far as possible the welfare of our industries and our wage-earners as may seem proper and desirable in order that, in the impending revision, the business of the country may not be disturbed, as Governor Wilson has repeatedly promised.

Recognizing that the business of the country has been built up by a protective tariff policy, the Home Market Club at its annual meeting, urges the President-elect and the Congress of the United States to thoroughly investigate the industrial and economic conditions of the country so that an unregulated foreign competition may not force our manufacturing establishments to close or to adopt the bitter alternative of reducing wages to the low level which prevails abroad.

We ask the attention of Congress to the fact that a material reduction of the duties on boots and shoes, silk, metal, cotton and woolen goods and machinery will be a serious blow to New England industries, and the welfare of a million workingmen.

We also urge Congress to grant to the pulp and paper industry the same just and fair treatment which is given to other industries in order that growth and expansion instead of stagnation and decay may once more become the proud record of a great American industry.

Ample protection is essential to the maintenance of our industries and of the higher standard of American wages.

The election of officers resulted as follows:

PRESIDENT

W. B. H. Dowse of Boston.

VICE-PRESIDENTS

John B. Smith.....Hillsboro, N. H.
John Hopewell .....Cambridge
Lyman B. Goff.....Pawtucket, R. I.
Joseph Metcalf .....Holyoke
Wm. M. Wood.....Boston
Leontine Lincoln.....Fall River
George M. Whitin.....Whitinsville

F. A. Sayles.....Saylesville, R. I.
Arthur H. Lowe.....Fitchburg
Stephen A. Jenks.....Pawtucket, R. I.
George A. Hammond.....Putnam, Conn.
Edward H. Haskell.....Boston
J. J. Dewey.....Quechee, Vt.
C. H. Parsons.....New Britain, Conn.
C. W. Springfield.....So. Wolfeboro, N. H.
P. F. Amidon.....Wilton, N. H.
Wm. S. Hopkins.....Woonsocket, R. I.
Frederic C. Fletcher.....Boston
L. D. Cole.....Newburyport
Arthur B. Daniels.....Adams
J. C. Osborn.....Fall River
George Park.....Dexter, Me.
Fred W. Estabrook.....Nashua, N. H.

EXECUTIVE COMMITTEE

The President, Secretary and Treasurer by virtue of their offices, and

Lew C. Hill.....Boston
Franklin W. Hobbs.....Boston
R. P. Snelling.....Newton Upper Falls
A. G. Pollard.....Lowell
Richard S. Russell.....North Andover

ADVISORY BOARD—THE EX-PRESIDENTS

Wm. H. Bent.....Taunton
William B. Plunkett.....Adams
George A. Draper.....Hopedale
Charles H. Hutchins.....Worcester
James R. MacColl.....Providence

DIRECTORS

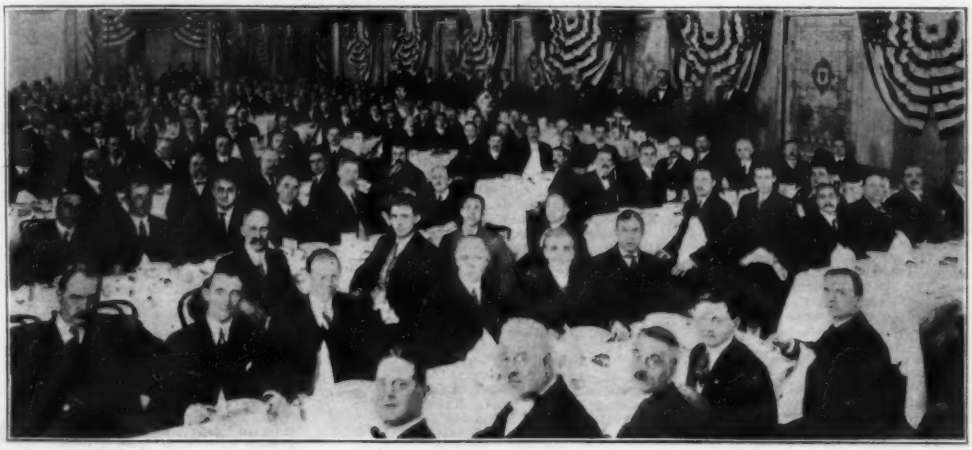
Term Expiring in 1915

Channing Smith.....Cherry Valley, Mass.
H. Carleton Slack.....Springfield, Vt.
S. O. Bigney.....Attleboro
Joseph E. Fletcher.....Providence, R. I.
Frank Hopewell.....Boston
John Shirreffs.....Fitchburg
Channing M. Wells.....Southbridge
H. T. Whitin.....Northbridge

THE NATIONAL ASSOCIATION OF WOOLEN AND WORSTED OVERSEERS

The thirtieth annual meeting of the National Association of Woolen and Worsted Overseers was held at the American House, Boston, Nov. 16. The meeting was called to order at 11.15 A. M. Secretary Pickford read the minutes of the previous meeting, which were accepted. A motion was made to have all applicants whose names were presented at the May meeting accepted to membership. The president appointed a committee to prepare the ballots for the election of officers.

The candidates for the office of president



THE NATIONAL ASSOCIATION OF WOOLEN AND WORSTED OVERSEERS

were J. H. Pickford of Carolina, R. I., and Richard J. Hill of Woonsocket, R. I. Mr. Pickford received eighty-three votes, while Mr. Hill received seventy-seven votes. On motion of Richard J. Hill the election of Mr. Pickford as president was made unanimous.

Joseph T. Dolan, one of the candidates for first vice-president withdrew his name, leaving the place open for Richard J. Hill, who was elected to that office.

Considerable discussion followed as to whether a member should be appointed to office who was not holding a position as overseer at the time of the election. A number of the members opposed any amendment to the by-laws in this matter, because, as they expressed it, in the past few years an overseer might have accepted the position

of superintendent or secured a position out of the mill, and in such a case he would not be in line for office in the association.

In behalf of the association, Albert E. Jones presented the president badge to Louis M. Allison, the seventeenth president of the association.

On motion it was voted to hold the next meeting in May at Providence, R. I., and a committee was appointed to make arrangements.

An interesting article on woolen spinning by J. J. Burns was read by Secretary Pickford. No further business being brought up, the meeting adjourned and the members took seats in the banquet hall where dinner was served.

Following is a list of the members present:

CONNECTICUT

Richard Arnold, Cos Cob.
George H. Ashton, Rockville.
Edward H. Ambach, Stafford Springs.
J. C. Bradley, Talcottville.
J. J. Burns, Moosup.
W. E. Davidson, Putnam.
John H. Gormley, Stafford Spings.
Clovis Henault, Shelton.
F. P. Gallagher, Central Village.
John J. Lyons, Putnam.
H. A. Morrissey, Danielson.
F. C. Neff, Rockville.
W. H. Nettleton, Central Village.
Albert Newbury, Yantic.
John J. Quinn, Stafford Springs.
Albert E. Riley, Rockville.
A. B. Shepherd, Stafford Springs.

MAINE

John Berube, Madison.
Benj. Evers, N. Vassalboro.
Albert T. Mabbett, Newport.
John E. Ormiston, Oldtown.
William F. Scott, Madison.
C. H. Speak, Fairfield.
John W. Gledhill, Oldtown.

MASSACHUSETTS

William Ahern, Worcester.
Robert R. Alexander, Maynard.
Louis M. Allison, Worcester.
Andrew Archer, Franklin.
Joseph E. Army, Millbury.
F. L. Babcock, Boston.
John F. Bagley, Lowell.
R. E. Bailey, Foxboro.
Arthur Birch, Arlington.
F. W. Birkinshaw, Pittsfield.
T. F. Brennan, West Somerville.
M. C. Brownell, Franklin.
F. A. Brown, Monson.
Charles V. Browne, Jefferson.
J. W. Bullard, Rochdale.
Thomas Buchan, Hyde Park.
D. G. Byars, Farnumsville.
Jas. A. Carter, Uxbridge.
James H. Cobb, Caryville.
G. Harris Cochrane, Franklin.
Geo. H. Cogswell, Maynard.
C. H. Courtney, Maynard.
J. H. Crowther, East Douglas.
John Dobbs, Lowell.
John F. Durkan, Maynard.
M. Chris. Dingley, Boston.
E. Fred Deverall, Rochdale.
P. H. Degan, Lowell.
C. T. Donlevy, Boston.
Everett S. Eddy, Worcester.
Herbert Ellis, Franklin.
M. J. Fagan, Concord Junction.
Joseph Fielding, Lowell.
A. P. Foster, North Andover.
Chas. H. Francis, Lowell.
James H. Gammon, North Billerica.
George W. Gerry, Chelsea.
Clarence S. Cove, Uxbridge.
John E. Graham, Lowell.
Austin B. Green, Fitchburg.
Geo. W. Greenbank, Uxbridge.
F. A. Hardy, Lowell.
P. F. Hamlin, Worcester.
Robert J. Harrington, Dalton.
P. J. Harney, Methuen.
W. H. Hassett, Holyoke.
John A. Heaton, Webster.
Jas. J. Hiliens, Lawrence.
James Hirst, Jefferson.
Daniel J. Holland, South Groveland.
Benj. Horsfall, Lowell.
George Ross Howarth, Caryville.
Thos. Hughes, South Barre.
T. J. Jennings, Clinton.
Thos. P. Jowett, Southbridge.
Wm. Jowett, Southbridge.
Charles A. Kennedy, Pittsfield.
Frederick W. Kennedy, Lawrence.
Simon P. Kenney, North Andover.
E. W. Keough, Middleboro.
F. S. Klebart, Dorchester.
Emil Kisro, North Billerica.
James A. Laprack, North Billerica.
J. N. LaRozer, Cherry Valley.
Jas. H. Lawler, Lowell.
John Lawton, Maynard.
J. G. Leith, Chelmsford Centre.
Xavier M. Lehman, Boston.
Wm. T. Loomis, East Douglas.
Thomas Lyons, Pittsfield.
Frank Manock, Lawrence.
John C. Marley, Lawrence.
Herbert Midgley, Worcester.
James J. Morgan, Maynard.
F. L. McCarthy, Fitchburg.
William R. McConachie, Clinton.
J. T. McCormack, Hyde Park.
Frederick F. McEvoy, Fitchburg.
J. R. MacGregor, Bridgewater.
Frank Norris, Pittsfield.
Augustus C. Neff, Millbury.
Archibald Ormiston, Clinton.
George Ormiston, Oakland.
Richard J. Owens, Fitchburg.
Thos. Pendergast, Newton Lower Falls.
Walter Pickford, Clinton.
Hiram Rathburn, Byfield.
James H. Redmond, North Billerica.
Alex. G. Rodger, Saugus
M. H. Roberts, Pittsfield.
R. B. Robinson, Lowell.
J. H. Rule, North Billerica.
G. W. Schellschmidt, East Douglas.
Albert E. Schoon, Lowell.
D. P. Scribner, Waltham.
J. H. Scully, Monson.
John Sheehan, North Andover.
Arthur Slater, North Andover.
Brock Southane, Lowell.
Thomas Southam, Lowell.
Thos. B. Smith, Holliston.
F. A. St. George, North Bellingham.
Peter Stitt, Maynard.
E. G. Taintor, Wamesit.
Richard Thomas, Lawrence.
E. R. Toop, Maynard.
J. E. Truesdale, Jefferson.
Geo. H. Underwood, Lowell.
J. M. Wagner, Medford.
John C. Weeks, East Douglas.
J. J. Wehinger, North Adams.
K. J. Whalen, Huntington.
J. W. Whitehead, Lowell.
Arthur J. Wicks, Lawrence.
Wm. F. Wicks, Haverhill.
Walter A. Neiber, Holliston.
Fred R. Williams, Lawrence.
Geo. W. Wishart, New Bedford.

NEW HAMPSHIRE

Louis O. Demers, Enfield.
Leinwood Green, East Rochester.
Thomas H. Igo, East Rochester.
Albert E. Jones, Hillsboro.
C. C. Jones, Somersworth.
Anthony Keenan, East Rochester.
George Moore, Somersworth.
Thomas Mullin, Franklin.
R. G. McBride, Hillsboro.
M. H. McEvoy, Somersworth.
Peter McKinnon, Tilton.
J. T. Patterson, Hillsboro.
Theo. N. Parent, Franklin.

NEW YORK

H. C. Templeton, Stottville.
J. J. Decnuit, New York.

PENNSYLVANIA

Benj. Booth, Philadelphia.
C. J. Jones, Philadelphia.

VERMONT

Thos. D. Holden, Winooski.
Albert E. Jones, Proctorsville.
John E. Gilroy, Burlington.
J. P. Ryan, Bennington.

RHODE ISLAND

H. B. Hazen, Davisville.
Wm. C. Hay, Woonsocket.
John H. Hetherman, Oakland.
Richard J. Hill, Woonsocket.
William F. Hines, Pawtucket.
Harry H. Hodgman, Nashville.
F. W. Allen, Pascoag.
Henry Hopkins, Providence.
Charles M. Hurst, Providence.
Jacob J. Jones, Mapleville.
Charles J. Keegan, Pascoag.
John E. Lancaster, Pawtucket.
C. T. Lanvier, Pascoag.
Arthur H. Little, Providence.
Patrick J. Malone, Bridgeton.
H. G. Metcalfe, Providence.
John F. Moore, Centreville.
F. J. McCauley, Woonsocket.
John T. McGough, Woonsocket.
Charles North, Washington.
John T. Northrop, North Providence.
Thomas Parkins, Providence.
F. W. Perkins, Woonsocket.
Orville Pero, Woonsocket.
J. H. Pickford, Caroline.
Patrick Purcell, Manton.
J. E. Quinn, Providence.
M. F. Quinn, Pascoag.
Thomas F. Rieteg, Harrisville.
Mederic Reindean, Woonsocket.
Hans S. Rinehind, Providence.
R. W. Ringland, Oakland.
Thomas J. Ryan, Pascoag.
George E. Saltonstall, Burrillville.
R. C. Schookman, Providence.
William Schofield, Providence.
James Southwell, Providence.
Andrew Smith, Westerly.
Henry Stewart, Lafayette.
Edgar M. Taft, Bridgton.
George E. Templeton, Pascoag.
Edward Tetley, Washington.
Herbert Thompson, Providence.
James A. Toop, Washington.
William Waterhouse, Providence.
Thomas R. Webster, Providence.
James Wilson, Providence.
Louis H. Dicks, Woonsocket.
Jos. T. Dolan, Harrisville.
Patrick F. Doyle, Pascoag.
A. Dregham, Woonsocket.
J. H. Driscoll, Manton.
F. J. Durkan, Pascoag.
J. F. Drummond, Woonsocket.
Louis M. Eddy, Westerly.
Charles Atteridge, North Providence.
Charles H. Atteridge, Providence.
J. B. Bennett, Providence.
Thomas W. Bradles, Potter Hill.
J. G. Burnes, Providence.
Ulric Burke, Caroline.
Jas. J. Calnan, Pascoag.
Louis Carmack, Providence.
James C. Carmack, Woonsocket.
Fred Carter, Pascoag.
John Cawthin, Providence.
Ralph Chase, Washington.
F. W. Clarkson, Glendale.
A. B. Crowell, Harrisville.
T. H. Fraser, Glendale.
Walter Gledhill, Providence.
R. E. Gregn, Mapleville.
Julien J. Guerin, Woonsocket.
John Guerin, Woonsocket.
Thomas Gordon, Oakland.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

THE DEVELOPMENT OF THE DABBING MOTION

BY JOHN BROWN

(Continued from November.)

Spreight, in 1877, took out a patent for an independent drive, which came as a revolution in the Noble comb. Up to this time the speed of the dabbing brush had been limited to the speed of the top shaft, and now the crank connection was done away with and its place taken by a belt. By altering the size of the pulleys any desired speed of dab could be obtained. In the Whitehead patent of 1878 a pipe was substituted for the ordinary slide in order to reduce the weight and obtain smooth running. A guide pin keeps the slide in place. This wore out very quickly, and the slide not being firm, the bristles soon wore out. The Thornton and Hoyle motion patented in 1879 had the shortest dial, that is, the quickest out of the circle of any direct driven dabber. The top part of the slide had a semi-circular slot and the dog, connecting with a pin fixed on the rim of the fly wheel, shown at Fig. 7. This motion was very heavy in running and limited in speed. The Baldwin improvement, patented in 1881, consisted in fixing the crank lower and was driven by friction. This resulted in the rod being shortened and the weight diminished, but the friction was not certain. Wharton and Smith's patent of 1882 had for its main object lightness of working parts, obtained by having the slide made of sheet steel. It was self-oiling. The Whitehead patent of 1882 consisted of a connecting rod to both brush motions, to ensure steadier running.

Broad brushes were the principal feature of Portway and Walker's motion patented in 1883. The brush motions were constantly sliding to and fro and pulling in three directions. It was a very cumbersome motion. The Walker motion of 1883 intended to do away with pillars. The brushes were both fixed to a long bar carried right across the machine and were actuated by a rocking motion. This motion was limited in speed. Garnett and Wheater's motion of 1884 replaced the heavy slide on Speight's motion with two steel tubes sliding through a boss, thus reducing the weight and allowing of greater speed. The Jefferson invention of 1884 consisted in using two fast pulleys in addition to loose ones. The middle pulley was geared to the counter shaft and fixed to

FIG. 7.

pillars. The brushes always start dabbing before the comb proper begins to run, insuring the stock being well down before the combs separate, Fig. 8. The Calvert patent of 1884 consisted of a tappet with two or three wings fixed to the top shaft, giving a corresponding number of dabs at each revolution of the shaft. The brush was raised by a strong spiral spring. This motion worked too heavy.

The greatest improvement in driving dabbing brushes since the Speight patent was patented in 1884 by Lister and Batty. This consisted of a short light slide driven by a tappet, the working parts containing a box which was self-oiling and capable of being run at a very high speed. Various slight im-

provements have been made in some of the working parts, but the principle remains about the same. The brushes in the Richardson patent of 1885 are driven by a motor and can be stopped before or after the other parts of the machine. The pawl and ratchet wheel in the Soothill patent of 1891 are fixed to a fly wheel on the top shaft, allowing the brush to make a few dabs after the machine has been stopped. In 1895 Musgrave and Scott patented a motion with a curved shoe or foot fixed to a brush slide, enabling the brush to be set at any angle. Many minor alterations in addition to the above list have been made, but those enumerated are a fair sample of the principal ones.

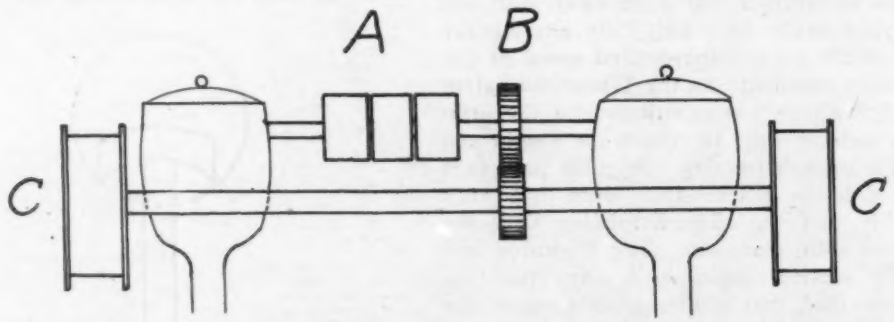


FIG 8. CENTER PULLEY, A, CONNECTED BY SLEEVE TO WHEEL, B, GEARED INTO AND DRIVING SHAFT, C.

In 1866 Brooman took out a patent for a substitute for the dabbing brush. In this, as in most of the devices which have for their object the abolition of the dabbing brush, steel discs were used to put the stock into the circles, with curved knives to hold the stock down. The discs were not driven, but carried around by the motion of the circle. The result was trailing ends and the circle choked. After this several attempts were made to put wool into circles with compressed air delivered through a pipe shaped like a heel of a brush. Two discs, one over and one under the slivers were used to prevent them from being blown back and pressing the knives to hold it down in front. But it was found that although compressed air acted in the coarser rows of the circle it failed at the vital point and was abandoned. Croft, Dawson and King in 1869 patented a substitute with inverted segments which was worked by being attached to and part of a conductor lid. The segment pins were to go between the rows of comb. The object of this was to do cleaner work and abolish the dabbing brush.

Battison and Whitehead in 1876 patented a substitute which had for its object the putting of stock into circles by three-winged discs working across both circles. One very coarse circle could be used. This device was soon abandoned. Beecroft and Wright patented in 1877 a device which put the wool in the large circles with discs and into small circles with segments, very similar to Ambler's device. Afterwards sheet steel was used in place of pins in the segments. Clarke's combination discs, rollers and knives patented in 1877 had for its object the pressing of wool by the rollers before coming to the discs. The knives were used to hold the wool down after leaving the discs and while the combs were separating. The Brook and Stake patent in 1877 was very similar to Clarke's and had the same faults. Hamilton in 1887 patents a substitute with discs and knives fastened on one stud alternately for putting stock into the circles, with special knives for lifting. In 1891 Lange patented a device with adjustable blade to guide the stock into the circles in place of a brush. This was not effective. In 1894 Hey patented a device with discs driven from a top shaft, but the stock was not held down.

Payne's device patented in 1889 worked with an oscillating dabber actuated by cams. Steel pins were used instead of bristles. This device was heavy and slow and soon discarded. Denby's patent of 1899 with oscil-

lating pressing knives put the wool under the heel of the knives by a blast of compressed air. This was not very effective.

The White and Cooper patent of 1901 to 1905 is called the compellator. In this patent the discs by which the stock is put into the circles are serrated and driven from the top shaft. They are kept in position by regulating nuts and can be put into any desired chamber. The stock is carried by leaders which insure that there shall be no dragging. There is no limit to the speed and very little to get out of order. The Greenwood patent of 1912 is the first really successful attempt to dab with knives working at a high speed. It is similar in some of its parts to devices which have been tried before and up to the present time it seems to have accomplished all that is claimed for it. A full description of this device appeared in the August, 1912, issue. Many devices in addition to the above have been patented from time to time with varying results, but those mentioned above may be considered as fair samples.

During the year 1909-10 the United States exported 93,633 bales of cotton to Japan, as compared with 149,372 bales for 1910-11.

TEXTILE SCHOOLS IN ENGLAND

There is no really national system of technical education in England, although since 1902 technical teaching has been made a unified part of the scheme of education at large. The providing of facilities is in the hands of local authorities to which Parliament makes grants and textile science is only one out of a large number of subjects to which these funds may be applied. Something like $7 1/2 millions per annum is spent out of the national and municipal funds in maintaining general technical, art or evening classes and schools. Part of the money goes in teaching which is not so much technical as preparatory to technical.

THE BRADFORD TECHNICAL COLLEGE

Boys leave elementary schools at 13 or 14 without possessing such knowledge as enables them to take a good grasp of strictly technical problems and before admission to the textile evening classes they are put for a year or two into continuation schools to learn what the elementary schoolmaster has not taught them. They pass then to the study of the theory and practice of the trade of their choice. Scholarships are to be won by a select few, and will pass the evening student into the day department of a Technical College. From thence it is possible to work

a passage through one of the Universities.

For practical purposes the beginnings of organized textile teaching in England may be dated from the 'twentries of the last century when the Mechanics' Institutes began to be built. These had the original purpose of pointing out and teaching the scientific principles upon which the various businesses are based and one of the earliest was confessedly formed on a New York model. The institutes fell away from their main purpose and became reading rooms and lending libraries for the middle classes, but there must be many alive in the worsted trade who received their only technical schooling in an Institute basement equipped with a single hand-loom. Chemistry was taught thoroughly to many dyers in the old institutes, but their strictly textile curriculum consisted of little more than designing and weaving.

The Institutes taught drawing, languages and commercial subjects and these lessons were transferred from them to the technical schools or colleges which succeeded them in some of the more important textile centers in the 'eighties. The equipment of these was meager by comparison with the large outfit of machinery considered necessary today, but constituted an immense advance on the previous arrangements. They were for a long while encumbered with functions which did not properly belong to them but by means of which grants could be earned. They depended partly on private benevolence and donations from wealthy and ancient corporations like the London livery companies and for the rest on such odd and insufficient sums as they could earn in Government grant or beg from municipal bodies. Their circumstances are more comfortable and their functions better defined now that they are in the hands of the municipalities and linked up with the new universities.

THE MANCHESTER SCHOOL OF TECHNOLOGY

Textile men of one trade and another have taken a great part in promoting technical education. W. E. Forster, author of the Act of 1870, which first gave England a national scheme of education and made schooling compulsory, was head of the mohair dress goods firm now called W. Fison & Co. Sir William Mather, of Mather & Platt, and Sir Swire Smith, a Keighley worsted spinner, have visited all manufacturing countries to inquire into the state of technical education and have left no means untried to force the pace in England. The late Sir Henry Mitch-

ell, of A. & S. Henry & Co., all but created and kept alive the Bradford Technical College by the strength of his will. Indeed the textile industry has furnished technical education with perhaps its best friends and with many of its worst foes, the latter of course being those who most obstinately refused to believe that a wide acquaintance with technical principles could be of advantage. Progress has been made by the liberal use of whip and spur and the continual threat that Germany or America, France, Belgium or Switzerland were ahead in learning and would presently take away English trade. At this date there is a fair measure of satisfaction with the textile work the schools are doing and the equipments they possess.

The control being local, it follows that each school has the fullest opportunity and incentive to make itself useful, especially to the industries of the locality. The Manchester Municipal School of Technology does not concern itself more than cursorily with wool, flax or jute, which are not manufactures of the neighborhood, but aims at giving the best tuition in cotton spinning and weaving and in silk manufacturing. The Bradford Technical College, the University of Leeds and the Halifax & Huddersfield Technical College pass over cotton and devote themselves to woolens and worsteds with especial reference to the types of goods made in the mills of their own districts. Day courses for students working for degrees or diplomas are given in all the larger establishments and in the small towns instruction is given only at nights. The fees charged vary with the number of subjects taken and with the school. At Manchester the fees are $105 for the school year and this pays for the day course in cotton or in silk. Evening students pay $10 a year for a course occupying three evenings a week. The day fee is $155 at Leeds and $7.50 for three evening courses. At Bradford the day fee is $84 and a charge of $1.80 is made for each systematic course taken at night. Copying German example, the Bradford authorities double the fee to subjects of foreign nationality and some others reserve the right to charge extra to foreigners.

The Manchester day course is intended to give a sound training in the theory and practice of spinning and weaving to those who are to be employed in spinning yarn, designing and weaving fabrics, buying and selling yarn and cloth or exporting textile machinery. The scheme extends over three years and includes the technology of fibers, the principles and processes of spinning and weaving, the analysis, testing and costing of goods, freehand drawing and applied design, English, German and textile engineering drawing; mathematics, mechanics, physics and mechanical and electrical engineering, construction of works, factory law, and chemistry in its application to fibers and to materials used in processes. The scheme of evening study is divided and a five year course is set in cotton weaving, with designing, analysis, testing, freehand drawing, mathematics, chemistry and some engineering added. The evening spinning course covers four years and includes some physics, mechanics, mathematics and engineering. It is for such courses that diplomas and associateships are given and the school authorities have certain discretionary powers in accepting students who do not take all subjects.

The diploma day courses at Bradford are three in number and each occupies three years. That in preparing, combing and spinning includes lectures in chemistry, mathematics, physics and technical German, in addition to distinctively textile work. The students have textile lectures on matters beyond tops and yarns, notably on cloth structure, analysis and finishing. Those taking the second alternative course in weaving and cloth structure spend much of their time at art lessons. The further alternative is a three years' course in all processes from preparing to cloth structure. Both at Bradford and Manchester the more elementary evening classes are held in district schools, leaving the central establishment for intermediate and more advanced work. There are several ordinary night courses at the Bradford College and the syllabus presupposes that the student has put in two years' work at the outside schools. The course in pre-

paring, combing and spinning includes color-study and some mathematics. The figure designing course extends over four or five years, the cloth structure course over two or three and a similar time is occupied by the special training in cloth analysis and reproduction. There are warp-dressing and twisting-in courses, pattern designing and weaving courses and overlooking and shed-managing courses, as well as the detached studies which can be taken, with some limitations, at will.

There is a weekly evening lecture at Manchester for buyers and salesmen of raw cotton and yarn, followed each evening by a practical demonstration on the machines. The varieties and grades of cotton are displayed, the market routine is followed and also the general course of spinning, including examination of the defects occurring in yarn. A similar course is arranged for cloth buyers and sellers covering the main facts about fibers and yarns, the structure of cloths and the types of looms suitable for given fabrics, calculations, costing and testing. The fee is only five dollars for either of those series. At Bradford, day courses under the names Merchanting and Tariffs and Testing Course are open to those who wish to add to their knowledge of the manufacture of cloth for trading rather than industrial purposes. The relatively simple needs of the salesman who wants little more than an insight into technical affairs are met more easily than the instruction of the technical man in every detail of a complex organization. By comparison these courses seem delightfully immediate and useful, and it is undeniable that night students are inclined at first to chafe under the system which defers specific instruction in a subject in which he is peculiarly interested until possibly the last term of his technical school days. Boys working among carpets, for example, are tempted to be impatient of much that is taught them for their own good about the manufacture of articles outside their own line and the application of principles of which the direct use does not immediately appear. However, the function of education is not to confine persons to the trades and circumstances in which they find themselves, but to open to them a wider door. No knowledge of how results are obtained in different fabrics need ever be wasted and some not unimportant effects have followed on the opening of men's eyes to methods never practiced in the mills of their own trade.

In a greater degree than formerly the schools have the sympathy and assistance of manufacturers, some of whom systematically give preference to youths who attend evening school. A few pay the fees for those of their employes who wish to learn and in that case it is usual for the employer to receive periodical reports on the progress made by each of his proteges. The Calico Printers' Association pays the fees and railway fares of boys selected by the works managers to attend the Manchester school and in special cases allows time for attendance at day lectures without loss of wages. The Bradford Dyers' Association shows a liberal spirit in allowing technical teachers and students access to its works. Here and there a manufacturer shows his appreciation of the work done by making presents of raw material for use in the college workshops. Again others stand aloof and, although showing some curiosity as to the work of the school, take no measures to forward the education. Relatively a few employers are enthusiastic and in general they are the broadest minded men. The majority are friendly more in a passive than an active way, and a minority are resentful that anyone should presume to know more than themselves.

It is of course true that a certain proportion of men who have distinguished themselves in the schools have made no especial mark in mill life. The schools get some of the blame, although the case might not have been improved by the absence of training. Partly or wholly on the strength of their certificates men have obtained positions which for some reason they have failed to fill. It is one thing to design cloth and another to produce those designs which will suit the particular mill and one particular season. Dyeing to fine shades in a laboratory where the material is white to begin with, and there is an instructor to help, is not identical with

dyeing lots which are never twice alike in the mill. Again a wide command of technical knowledge is not a guarantee of the ability to manage men. Experience is necessary as well as learning and most dissatisfaction with the product of the schools arises from misapprehension of what they attempt or profess to do. Naturally, different schools are held in different degrees of esteem and some return better value for money than others. Fees received go but a short way towards the upkeep of the establishments and there is among textile men, not ill-disposed towards technical schooling and acquainted with the financial side of public education, a prevalent opinion that textile teaching costs somewhat too much. This is not entirely because teaching salaries are high, for most of them are conspicuously inadequate, but rather because the organization is felt to be faulty. The sight of expense running to waste offends the commercial eye and it remains to be seen whether current proposals for making continuation and technical schooling obligatory up to age 16 or 17 do anything to reduce either the sum total or the rate of expense per head. Probably textile teaching must always seem costly and its justification will depend on the view taken of the credit side of the account in which there are sure to be items not directly or certainly attributable to one expense or another.

At any rate the English textile schools are well appreciated by strangers. Hindus, Japanese, Brazilians, Levantines, Chinese with a sprinkling of Continentals are to be found in most of the large institutions and some day classes would seem to exist principally for their benefit. Then a percentage of the evening students, unable to gratify their ambitions in their own locality, take ship for the United States soon after they have been fledged. The training is not at all solely for the English industry and there is some reason for saying that this training of outsiders on machinery that is nearly all English, is favorable to British machine makers and exporters of English yarns and materials. German machinists have found it unequivocally to their advantage to have persons from all over the world go to Germany to learn electrical engineering and it is notable that German engineers should now be presenting machines to equip four German technological schools that are to be erected in China. Much of the machinery in English textile schools has been given or sold at a reduced price and sellers of new machines are generally thankful to have them installed in places where they are so sure to be observed.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

Translated and Revised by Samuel S. Dale

This Series began in July, 1911

CREPE WEAVES

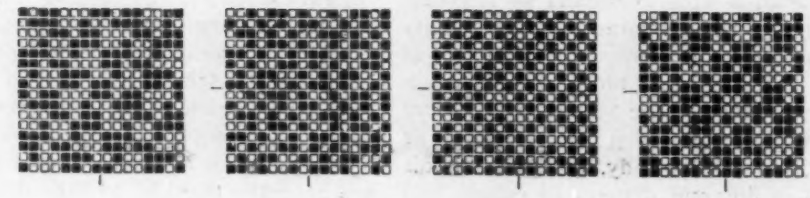
These are weaves in which the warp and filling are interlaced so as to give the cloth a mixed or uniformly mottled appearance. The more uniform this mixed effect is, the better is the crepe effect considered to be. In constructing these fabrics great care must be taken to avoid stripe effects and to have each thread stitched with floats of practically the same length. Crepe weaves are used for all varieties of garments.

No general rules for the construction of these weaves can be laid down, as each weave is peculiar to itself, but examples will be given to show how they can be drafted. A number of the most frequently used crepe weaves are shown at Figs. 795 to 919. The limits of the pattern are indicated by the lines at the left side and the bottom of the respective drafts.

Fig. 829 ..... 8 ends, 8 picks
Fig. 830 ..... 8 ends, 8 picks
Fig. 831 ..... 8 ends, 8 picks
Fig. 832 ..... 8 ends, 8 picks
Fig. 833 ..... 8 ends, 8 picks
Fig. 834 ..... 8 ends, 8 picks
Fig. 835 ..... 8 ends, 10 picks
Fig. 836 ..... 8 ends, 10 picks
Fig. 837 ..... 8 ends, 10 picks
Fig. 838 ..... 10 ends, 10 picks
Fig. 839 ..... 10 ends, 10 picks
Fig. 840 ..... 10 ends, 10 picks
Fig. 841 ..... 10 ends, 10 picks

(Copyright, 1912, by Samuel S. Dale.)

FIG. 827. FIG. 828. FIG. 829. FIG. 830.



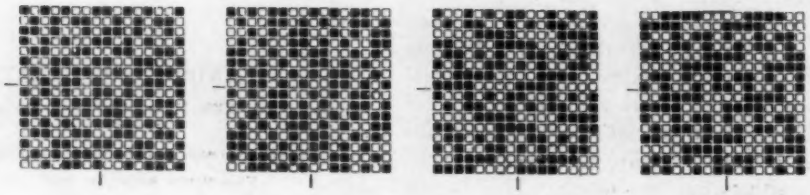
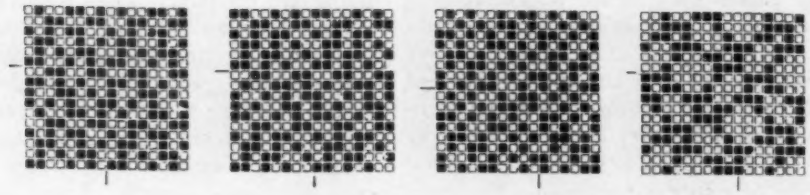


FIG. 831. FIG. 832 FIG. 833. FIG. 834.
FIG. 835. FIG. 836. FIG. 837. FIG. 838.



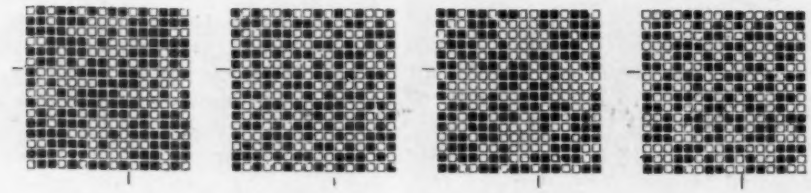
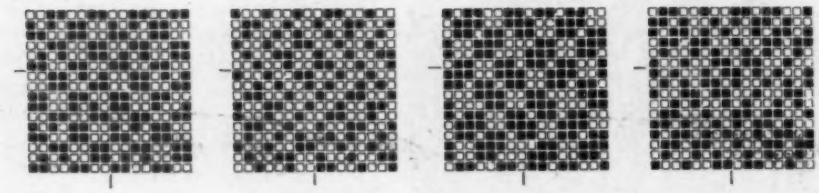


FIG. 839. FIG. 840. FIG. 841. FIG. 842.
FIG. 843. FIG. 844. FIG. 845. FIG. 846.



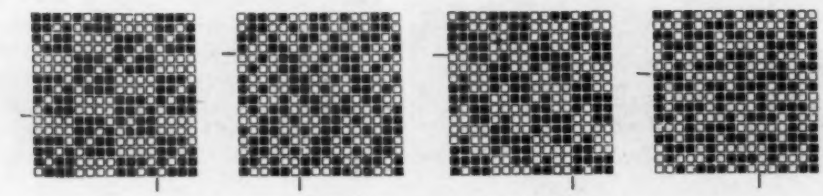
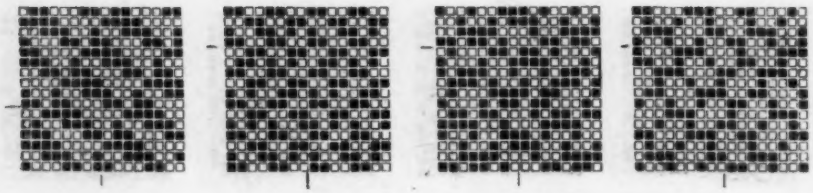


FIG. 847 FIG. 848. FIG. 849. FIG. 850.

FIG. 851. FIG. 852. FIG. 853. FIG. 854.



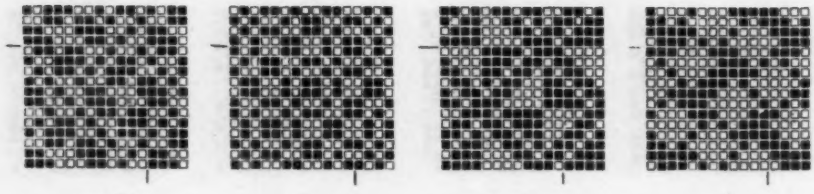
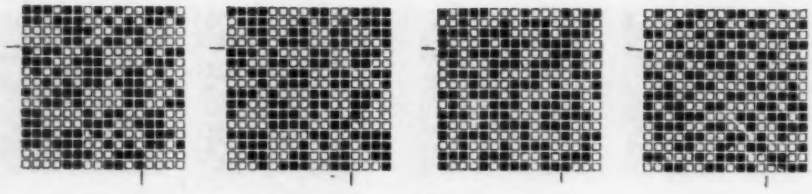


FIG. 855. FIG. 856. FIG. 857. FIG. 858.
FIG. 859. FIG. 860. FIG. 861. FIG. 862.



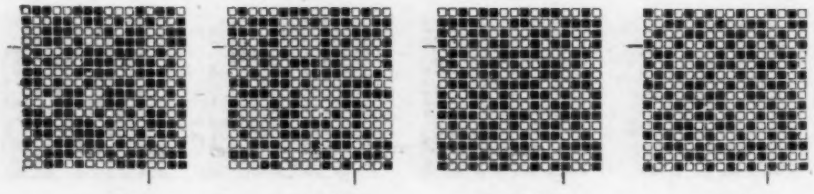
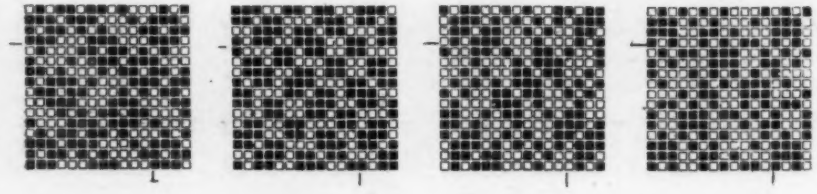


FIG. 863. FIG. 864 FIG 865. FIG. 866.
FIG. 867. FIG 868. FIG. 869. FIG. 870.



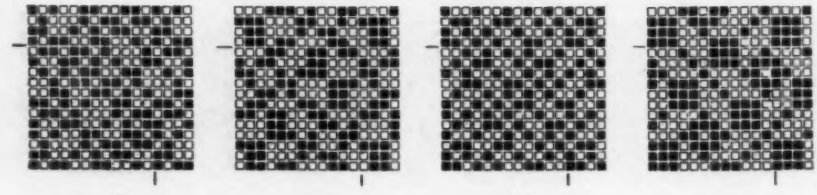
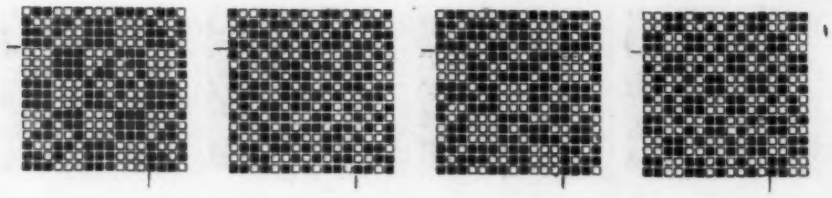


FIG. 871. FIG. 872. FIG 873. FIG. 874.

FIG. 875. FIG. 876. FIG. 877. FIG. 878.



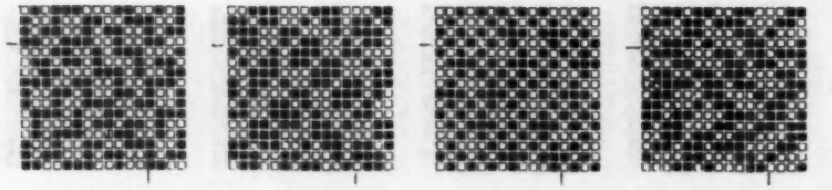
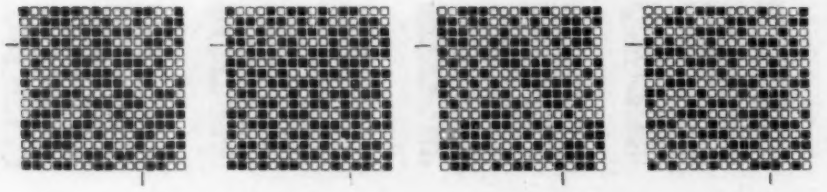


FIG. 879. FIG. 880. FIG. 881. FIG. 882.
FIG. 883. FIG. 884. FIG. 885. FIG. 886.



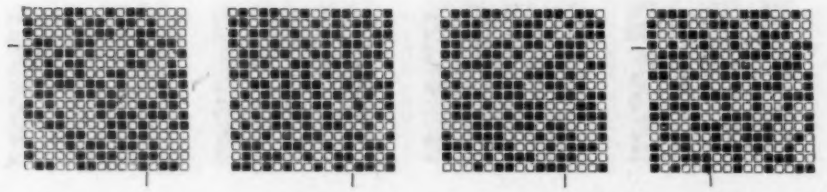
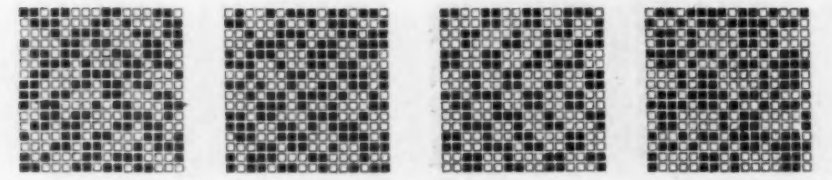


FIG. 887. FIG. 888. FIG. 889. FIG. 890.
FIG. 891. FIG. 892. FIG 893. FIG. 894.



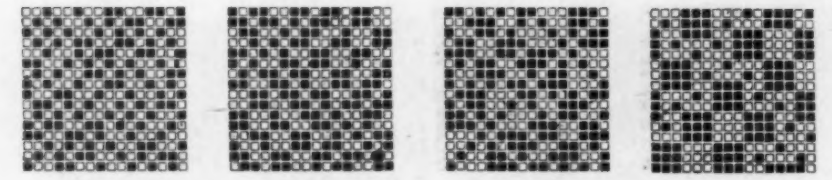


FIG 895. FIG. 896. FIG. 897. FIG. 898.

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Fig. 845 .....10 ends, 10 picks
Fig. 846 .....10 ends, 10 picks
Fig. 847 .....12 ends, 6 picks
Fig. 848 ..... 6 ends, 12 picks
Fig. 849 .....12 ends, 6 picks
Fig. 850 .....10 ends, 10 picks
Fig. 851 ..... 8 ends, 12 picks
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Fig. 898 .....16 ends, 16 picks

ENGLISH NOTES

By Our Regular Correspondent

News of the success of Woodrow Wilson has been received undemonstratively by those to whom a change of tariff is of closest concern. The several false starts in tariff revision have tempered Bradford excitement over the prospects of a reduction. The Yorkshire worsted and woolen industries have more than enough business for the present, irrespective of the American market. It is expected that tariff reduction will sooner or later assume some such shape as 50 per cent. and the prospect will undoubtedly weigh with those who have been considering the enlargement of their mills. There was admittedly room beforehand for a few first class new merino spinners and the chance of doing a larger business with the States will not be lost to sight. Lancashire has ceased to take the American market into serious reckoning and Yorkshire is nothing like so dependent on the American outlet as at one time. The decline in relative importance can be sketched from the statistics of woolen and worsted fabrics exported to foreign countries. In 1860 the shipment to America was 40 per cent. of the total exports; in 1870 America was taking 24 per cent.; in 1880 the American quota was 20 per cent.; in 1890 it was 31 per cent. and in 1900 only 12 per cent. In 1910 the American trade was only 11 per cent. of the total. In the period from 1860 to 1910 the export of wool piece goods to British territories increased from two sterling millions to nine.

* * *

The special pleading done in the advertising columns of the "Manchester Guardian" by the Southern Cotton Association has consisted latterly of weak attempts to argue that a trust is not a trust when conducted in the name of farmers. The Association

appeals to Lancashire spinners, perhaps forgetting that an opinion of the methods of this organization has already been expressed in a spinners' report. The Lancashire Private Cotton Investigation Committee in 1906 had this, among other things, to say:

> The question of marketing cotton is being forced to the front by the Farmers' Union and the Southern Cotton Association. The chief difference in their aims appears to be that while the Farmers' Union would like to fix the minimum price at 11 cents, the Southern Cotton Association advocated 15 cents. To enable them to successfully carry out this interesting experiment to defeat the economic law of supply and demand, they propose to eliminate all middlemen between the field and the factory. . . . These two Associations . . . mean business. That business, stripped of all side issues, is to form a gigantic Trust. . . . The idea seems to be that the antidote to a Trust . . . is a stronger Trust. And so these Trust-ridden planters endeavor to minimize one evil by the addition of another.

The report expresses the spinners' faith in the efficacy of free competition. This should supply a useful cue to the adroit advertisement-writer whose remaining business is to prove that the Southern Cotton Association is the incorporated soul of the free competition in which the spinner, as buyer, puts all his belief.

* * *

The further disclosures in the Willey case, including the espionage at the firm's English works and the official supervision at South Barre, have had one evident effect on Yorkshire textile opinion. They have intensified the feeling that official retribution is stronger against English than American firms. The effect may be to restrict English concerns operating in America to the straight and narrow path, but obviously the conviction that one will be handled more severely than one's neighbors does not conduce to the extension of British industrial enterprise in the United States. Nearly all discussion of the recent treatment of Anglo-American firms shows the influence of this supposition that the British capitalist is a marked man. Be the suggestion well or ill-founded and be the result desirable or undesirable, the fact may as well be recognized. Possibly something of the same kind can be said of all foreign manufacturing adventures, but in no case has there been illustrations so conspicuous as those which have accumulated in the American experience of the last few years.

* * *

War has played an incalculably important part in the upbuilding of British textile industry in the past. War—or what is the same thing—sent us the Flemings of the 16th and the Huguenots of the 17th centuries to improve the standard of technical skill. The Napoleonic wars which drained Europe a hundred years ago left England almost without foreign competition. The Franco-Prussian war of 1870 disabled the nearest competitors and made fortunes for the North of England which have allowed numbers of concerns to withstand shocks that could never have been supported without large reserves. The Crimean, the South African, the Russo-Japanese and even the Philippine wars had their compensations for our textile manufacturers in the shape of contracts for woolens and some cotton khaki. Nothing but inconvenience and uncertainty have come out of the Balkan conflict. Like Japan, the States engaged have their own mills for making army goods. Turkey has Government and private woolen factories and Bulgaria in times past has supplied overcoating to the Turkish army. While war has served some purposes it is of course obvious that English manufacturing interests have been served best by the ensuing peace and one war which is very well remembered in America cost Lancashire a round sum computed at $350,000,000.

* * *

Silk spinners are taking due notice of the latest novelty in artificial silks, a French invention to which the name "new schappe" is applied. The fundamental distinction between this and any chemical silks hitherto known, is that it is made in short lengths to be spun on frames and not in long lengths to be combined into yarn on reels. Incidentally the fibers are very much finer than the filaments made for continuous reeling. New schappe can be used to make velvets, for which purpose other artificial silks have not

been a success and in ordinary weaving it is said to cover 20 or 30 per cent. better than the artificial net silks. Apparently the cost of producing spinable drafts is low and 29 cents per pound is named at present. Given a plant making one ton a day it is said that the first cost, apart from general expense, would be lowered to 14 1/2 cents. The inventors talk of selling the drafts to spinners at $1.08 or more, but its marketable value remains to be tested. At a price sufficiently below the cost of drafts made from waste silk the regular silk spinners might be tempted to mix the artificial with the natural fiber, but apparently there would have to be a greater inducement to persuade English spinners. The artificial fiber has one notable advantage in that its filaments are all of one length, so that probably fewer doublings will be required to draw the yarn level than are required where natural silk of three or four different lengths have to be thoroughly intermingled. As the artificial fibers have less strength than those of the genuine article, this probability is of some practical importance. It is said that new schappe has been spun to 120s (cotton count). One of the largest cotton manufacturing firms in Manchester has obtained an option on the British patent rights. Artificial silk of the kind simulating net silk sells well in England and at prices which leave a considerable profit. The salesman of one producing concern is said easily to sell the year's production in three months' time. Attracted by the good results achieved in Coventry, a Bradford firm is making arrangements to produce wood pulp silk in a rural district near the Yorkshire seaboard.

* * *

It is a dozen years since the last of the large textile combines were formed in this country and there is no perceptible public demand for new financial operations of the same order. A London firm, financed with Belgian and French money, is buying modern weaving and spinning mills in Lancashire with a view to floating the combined enterprise with some such capitalization as $17,500,000, before Christmas. Some properties have been acquired and the promoters are under treaty for more. This is not an especially favorable time to buy, for new weaving mills cost $20-25 more a loom to build now than they were costing when this year opened. Profits are good enough to make owners reluctant to sell, and incidentally some ten thousand new and independent looms are being put into operation in Nelson, Burnley and Blackburn. There has been no cotton-weaving combine hitherto, although the Calico Printers' Association is of importance as a weaving concern. In spinning there is only the Fine Counts Spinners' Association. As spinning is often good when weaving is bad, and vice versa, the conjunction of the two may have a steadying influence. There are years in which men able to undertake the very largest orders thereby obtain some exceptional advantage, but the possible economies have their attendant dangers and nobody acquainted with the course of Lancashire trade will agree that a heavy capitalization is helpful in the fight.

* * *

Works are being erected near Manchester to operate the Claviez patents for the manufacture of textilose. The patents appear to be three in number. One of 1905 is for fashioning a round, stretched yarn out of a strip of paper. One of 1908 is for overcoming the absence of rigidity and elasticity in paper yarn by combining with the paper "a fleece or nap of textile fiber of any kind." A third of 1910 is for coating paper destined in yarn, first with an adhesion and next with fiber fed from a carding machine. The second of these specifications refers to the ease with which cotton, wool, linen or jute, secured on a base of paper, can be dyed and manufactured; also to a softness that makes the use of pure textile fiber no longer necessary. It is not, however, as a serious competitor in the clothing line that textilose has been most heard of. In Germany it serves as a substitute for jute for bagging purposes and jute manufacturers there are closely investigating its claims. Paper yarns in England have scarcely lived up to the reputation claimed for them, but it may be that paper

coated with a layer of jute is superior to paper in its naked state.

* * *

Coal is some 20 per cent. dearer than a year ago in consequence of the rise in wages and expenses, and fuel consumption is very earnestly regarded by textile men. Two in the same branch of business doing generally similar work by different means found on comparing notes lately that steam cost one concern 16 per cent. and the other less than 6 per cent. of the value of the turnover. Coal was the same price to one as to the other and both had introduced the boiler appliances which seemed best to them. Of course this difference was greater than anything that could be ascribed to the boiler plant. The one had arranged his plant to economize steam and the other, partly because of the nature of the work, partly because of failure to persuade his superiors, had been unable to do so much. One has to heat a lot of water whereas the other contrives to do even more work with very little. Steam economy does not stop at the boiler house, at any rate in the dyeing trade, but dyers are increasingly careful of the heat value of the coal delivered. One of the largest combines counts its savings from coal analysis by thousands sterling annually. The contract with the colliery is based on the examination of a standard sample which is tested for ash and moisture and for the number of heat units. Every week samples are taken under stated conditions at each of the branch works of the combine and pound samples, assorted to correspond with the bulk, are sent in an airtight canister to the laboratory to be consumed in compressed oxygen inside a Berthelot bomb. The weekly sample is a small one, but the concern has a large number of works and the samples tell their tale when contrasted with one another. Not less than a twenty-pound sample is exacted by the Manchester Testing-house when it is approached for a certificate on the calarific value of coal.

* * *

One of the forgotten facts of Anglo-American intercourse is that English mills used at one time to manufacture American silk. In 1749 an English statute was passed to encourage the growth of silk in Georgia and South Carolina by permitting it to land in England free of duty. The concession seems not to have been fruitless to judge by Arthur Young's account of a visit to a silk mill in 1769. The mill was in Sheffield, a city now destitute of textile industry and given over to cutlery and armor-plate. The mill was a copy of the famous one founded fifty years earlier in Derby by Thomas Lombe, the first to make silk throwing machinery work in this country and the founder of the factory system of today. In this Sheffield mill, employing 152 hands and paying its women $1.25 to $1.50 a week, they used Bengal, China, Turkey, Piedmont and American raw silk. "The Italian," says Young, "costs $8.40 a pound, but the American only $4.80; it is a good silk though not equal to Piedmont." It may assist understanding to be told that the mill worked up 150 lbs. of raw silk a week, was driven by a water-wheel and was built and equipped at a total cost of $35,000.

A YARN GUIDE AND CLEARING DEVICE

The device shown in the accompanying illustrations, invented in Germany, is designed for guiding yarn wound from bobbins and spools. The inventor gives the following description of the apparatus: While the invention can be used in connection with various kinds of machines, it is intended more particularly for the bobbin-frames or creels of warping machines. Fig. 1 is a side elevation, showing a portion of the bobbin-frame or creel of a warping machine and the improved yarn guide. Fig. 2 is a plan view of a warping machine creel. Fig. 3 is a side elevation of the creel.

The creel is made with two sides, each supporting bobbins or cops. These sides converge toward each other in the direction of one end of the frame. Each side is composed of longitudinally-extending horizontal rails. The rails are supported one above another upon the uprights. As shown in Fig. 3, the arrangements of the horizontal rails and uprights is such as to produce in each side of the warping frame or creel a

number of compartments. A number of bobbin carriers is contained within each compartment. The two sides of the warping frame or creel are joined together and the whole stiffened by cross-pieces. There are glass rods carried by outstanding small brackets, and around which the yarns change direction after leaving the guiding devices. From the glass rods the yarns proceed to the winding mechanism.

The manner in which the yarn travels from the cops through the combined thread guide, clearer, and tension-device on its way to the warping rollers is shown at Fig. 1.

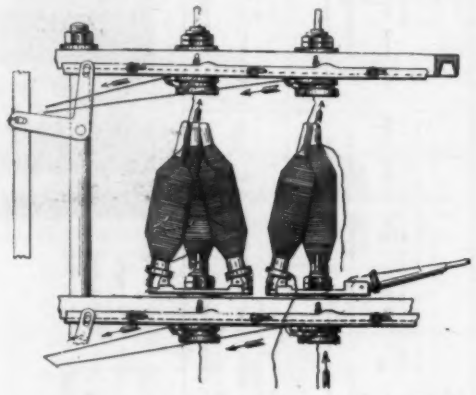


FIG. 1.

To prevent the thread rubbing against the rough iron parts and to prevent the numerous threads from colliding with one another, they are led around the glass rods.

Each of the horizontal rails, with the exception of the top one, supports a series of bobbin carriers, and each, with the exception of the bottom one, supports a series of the combined guides, clearers, and tension-devices.

Each cop-carrier comprises a base and a series of bobbin or cop-receiving spindles, Fig. 1. The spindles are hinged or pivoted between pairs of upstanding lugs on the base, so that a spindle may be swung downward and outward, as represented at the right hand side of Fig. 1, into position to enable an empty bobbin to be removed and a full bobbin to be applied, without interfering with the other bobbins, and, what is more important, without interfering with the unwinding yarn or thread as it circles about its bobbin. This capacity of the respective spindles to be swung outward for the purpose of supplying fresh bobbins enables the bobbins to be set more closely together upon the carrier, and to converge much more closely to-

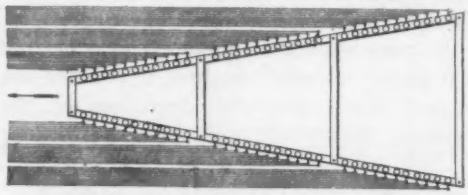


FIG. 2.

gether at their upper ends than would be possible otherwise.

It enables the bobbins to be brought more nearly in line with a line passing down through the center of the delivery-guide above them, and renders it possible to locate the guide a very short distance above the upper ends of the bobbins. The extent of the ballooning of the unwinding yarn as it circles around the bobbin or cop from which it is being drawn is very much reduced, which not only reduces liability to breaking of the yarn, but enables the carriers to be set closer to one another, thereby reducing the size of the bobbin frame and consequently the extent of floor-space that is occupied.

The base of each bobbin carrier rests upon the upper surface of the supporting rail and is secured in place by a bushing having a

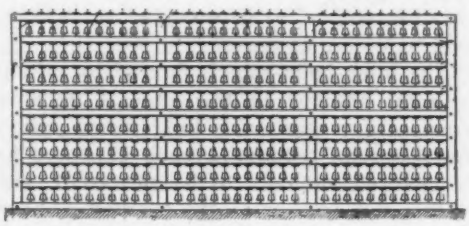


FIG. 3.

flanged lower end, the stem being extended through a hole in the base, the screw-threaded portion of the said stem carrying the nuts between which and the upper surface of the rail the base is clamped.

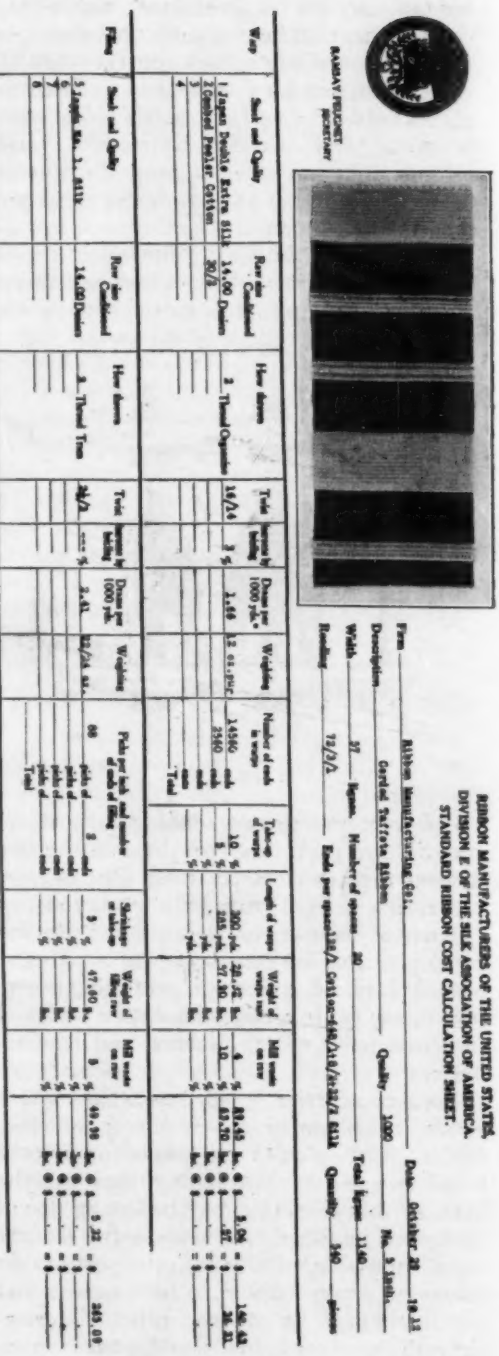
When the bobbins are placed on the spindles a little yarn is unwound from each bobbin and the inner end of the yarn of one bobbin is connected to the outer end of the yarn of the next. Before reaching the warping roller, the thread passes through the combined guide, clearer and tension device which is located immediately above the upper ends of the cops upon the spindles, and is cleared as it passes through, so that it reaches the warping roller perfectly clean and at the necessary tension.

ESTIMATING THE COST OF RIBBON

We called attention in August to the department established by the Silk Association for supplying estimates of the mill cost of ribbon. The system of estimating cost is explained by the cost estimate blank which his recently been distributed to the trade. In order to make the plan as clear as possible to our readers we arranged with Secretary Peugnet to supply us with the blank filled out to give an estimate of a sample of ribbon. The estimate and sample are shown in the illustrations, following being the explanatory note attached to the blank:

"General Expense includes—all salaries and all wages not provided for in the above calculation—interest on investment and all other interest charges, bank loans, commission house loans, etc.,—rent—taxes of all kinds—insurance of all kinds—depreciation of machinery and buildings—repairs—light, heat and power when not included in rent—supplies and incidentals of all kinds—transportation—office expenses—and a sum to cover sampling expense.

"The loom-hour rate is figured by taking the total amount of the general expense items for any reasonably long stated period (not less than 6 months, such expenses as are charged annually to be prorated), and dividing this amount by the average number of looms running during this period (figuring for general practice 65 per cent. of the total number of looms of plant), and then dividing the quotient obtained by the number of working hours included in this period. For the benefit of those who have not kept their books in such a way as to give these


RIBBON MANUFACTURERS OF THE UNITED STATES.
DIVISION E OF THE SILK ASSOCIATION OF AMERICA.
STANDARD RIBBON COST CALCULATION SHEET.
RAMSAY PEUGNET
SECRETARY

figures, the committee has adopted the average figure of 20 cents per loom hour, which may be increased or diminished according to individual experience.

"Throwing wastes on good Japan and Italian silks should not exceed 2 per cent. for organzine stock and 3 per cent. for tram stock. Wastes on inferior grades, and on Cantons, Tussahs and Tsatlees run higher.

"All warps to be figured on a basis of 300 yards, which has been adopted as the standard warp length. (Shorter warps bring a higher cost.)

"To net mill cost must be added commission for selling and discount, which, with the extra dating that is prevalent at the present time, is generally 15 per cent. on the selling price. Therefore, divide the net mill cost by .85 to get net selling cost. To this net selling cost must be added a certain percentage for profit."

The total number of cotton spindles in the world at the end of 1911 was estimated at 137,278,752, compared with 133,384,794 for the end of 1910.

COST OF MATERIALS

	Organzine Cotton					Tram			
	1	2	3	4		5	6	7	8
Raw . . . based on net price per lb. conditioned weight	4.00	.40				3.60			
Throwing . . per lb.	.50					.35			
Throwing waste on raw + throwing = 2 % = . .	.09				3% 2%	.12			
Dyeing . . . raw weight per lb. + 2 % for soap and oil	.23	.12				.97			
Winding . . based on raw weight per lb.	.12	.05				.10			
Doubling . . based on raw weight per lb.						.06			
Quilling . . based on raw weight per lb.						.12			
TOTALS	5.04	.57				5.32			

1 Warping & Beaming (Basis 2½ ¢ per 100 ends of 100 yds.)	14560	ends	@ $.07½	per 100	$	10.92
2 " " (" 3½ " " " " " n)	2560	ends	@ $.10	per 100	$	2.56
3		ends	@ $.	per 100	$	.
4		ends	@ $.	per 100	$	.
Twisting-in	16320	ends	@ $ .04	per 100	$	6.53
Rigging loom 12.50 Fixers' time, etc. Reeds 12.00					$	24.50
Harness	16320	ends	@ $ .16	per 100	$	26.11
Weaving (— picks per minute, 9 yards per day)	27	cuts	@ $4.00	per cut	$	108.00
Piece dyeing		lbs.	@ $.	per lb.	$	.
Surface printing		pieces	@ $.	per piece	$	.
Picking and cleaning	540	pieces	@ $ .01	per piece	$	5.40
Finishing	540	pieces	@ $ .01	per piece	$	5.40
Blocks	540	blocks	@ $2.70	per 1000	$	1.46
Paper	240	lbs.	@ $ .04	per lb.	$	9.60
Blocking	540	pieces	@ $ .00½	per piece	$	2.70
Labels and labeling	540	pieces	@ $2.50	per 1000	$	1.35
Boxes and boxing	60	boxes	@ $ .06	per box	$	3.60

PRINT WARPS

Cost of design — and engraving rolls —				$	.
Cost of weaving binding picks before printing —				$	.
Cost of filling used for binding threads		lbs.	@ $. per lb.	$	.
Cost of printing, number of colors —		yds.	@ $. per yd.	$	.
Expense time loom is standing.		hours	@ $. per hour	$	.
Cost of rebeaming and spacing				$	.
Cost of retwisting				$	.

JACQUARDS

Designing				$	.
Card cutting		cards	@ $ — per 100	$	.
Cards		cards	@ $ — per 100	$	.
Special harness expense				$	.

GENERAL EXPENSE

Including time required for twisting-in and starting loom	330	loom hours	@ $ .20	$	66.00
			TOTAL COST	$	724.76

NET MILL COST PER PIECE $ 1.34+
NET MILL COST PER LIGNE $ .0236

RIBBON MANUFACTURERS OF THE UNITED STATES

CORE YARN

BY GARHWAL

In looking over the articles on core yarn contained in the March and April issues it occurred to me that your readers would be

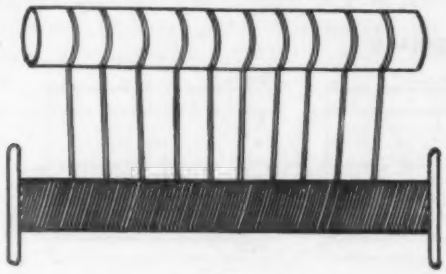


FIG. 1.

interested in additional particulars regarding this process. The cotton core is first wound on the regular roping spools and fastened on a frame at the back of the card just above the rub rolls. A guide is placed near the doffing cylinder with guide eyes set so as to deliver the core in center of the doffer rings. The core is started between the wipe roll and doffer, carrid back to roping spool and delivered in the center of the doffer rings. When going through the rub rolls the covering is rolled around the core in such a manner that the core is almost completely hidden. Two of these threads are then twisted

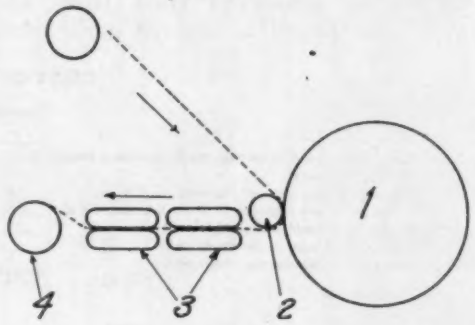


FIG. 2.

together. An improved method consists in delivering two ends to the doffing rings as near the centre as possible and about 3/16 to 1/4 inch apart. When rubbed together the threads of the core are embedded so well in the fibers that when twisted either on a mule or twister the covering will not strip. This makes the thread almost if not altogether like all wool. This process has elim-

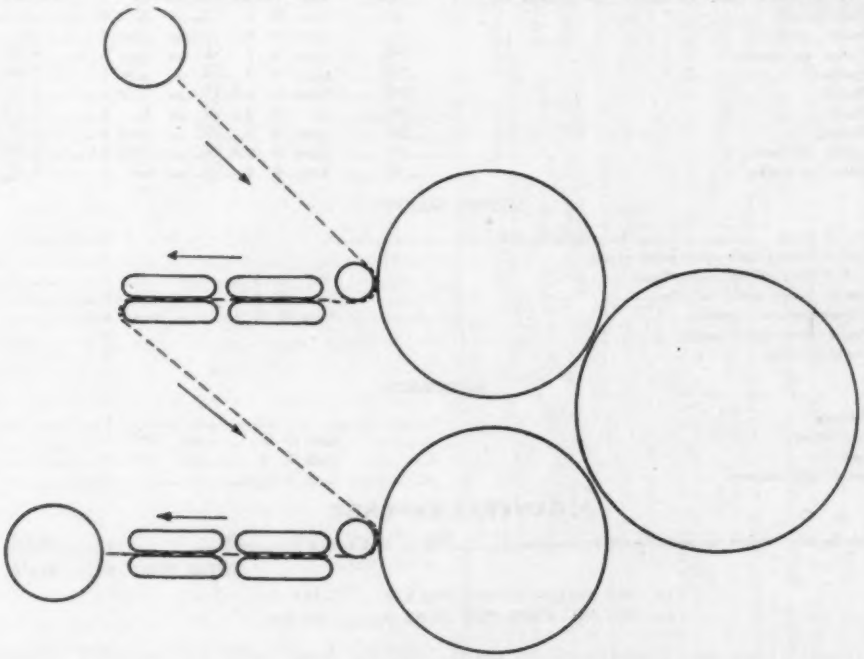


FIG. 3.

inated the trouble of stripping which was the result of yarn made with a single core. There is another process called the "double covered" which is made by taking only one spool from the card instead of two. The yarn coming from the top condenser is taken through and under, and again delivered to the bottom roll, thereby getting a second covering. This latter process is the best for heavy socks, as the covering is more even than that made by the single covered process. I have seen core yarn made and used for both warp and filling in woven goods and which did not strip when used as warp.

The finishing or twisting of the yarn from the card is best done on a twister, but can also be done on a mule. It is almost necessary to use a doubling twist scroll, as the ordinary scroll gives too much twist for ordinary knitting yarn. Fig. 1 shows how the core yarn is delivered to card. "Front view." Fig. 2 is a side view of the single covered process. Fig. 3 is a side view of the double covered process.

NEW PRICE LIST FOR COTTON DUCK

The price lists of cotton duck have recently been revised by the J. Spencer Turner Co., the first to be issued being the following, which covers wide goods:

WIDE COTTON DUCK

Nos.	1/0	1	2	3	4	5	6	Nos.	7	8	9	10	11	12	Nos.
26 in.	..58	..55	..52	..49	..46	..43	..40	26 in.	..39	..35	..33	..30	..28	..26	26 in
28 in.	..62	..59	..56	..53	..49	..46	..43	28 in.	..42	..38	..35	..32	..30	..28	28 in.
30 in.	..67	..63	..60	..56	..53	..49	..46	30 in.	..44	..41	..38	..34	..33	..29	30 in.
32 in.	..71	..68	..64	..60	..56	..53	..49	32 in.	..47	..43	..40	..36	..35	..30	32 in.
34 in.	..76	..72	..68	..64	..60	..56	..52	34 in.	..50	..45	..43	..39	..37	..32	34 in.
36 in.	..80	..76	..72	..68	..63	..59	..55	36 in.	..53	..49	..45	..41	..39	..34	36 in.
38 in.	..85	..80	..76	..71	..67	..62	..58	38 in.	..56	..52	..48	..43	..41	..36	38 in.
40 in.	..89	..84	..80	..75	..70	..66	..61	40 in.	..59	..54	..50	..45	..43	..38	40 in.
42 in.	..93	..89	..84	..79	..74	..69	..64	42 in.	..62	..57	..53	..48	..45	..40	42 in.
44 in.	..98	..93	..88	..82	..77	..72	..67	44 in.	..65	..60	..55	..50	..47	..42	44 in.
46 in.	1.02	..97	..92	..86	..81	..75	..70	46 in.	..68	..62	..58	..52	..50	..44	46 in.
48 in.	1.08	1.03	..97	..91	..86	..80	..74	48 in.	..72	..65	..61	..55	..53	..46	48 in.
50 in.	1.14	1.08	1.02	..96	..90	..84	..78	50 in.	..75	..69	..64	..58	..55	..48	50 in.
52 in.	1.18	1.12	1.06	1.00	..94	..87	..81	52 in.	..78	..72	..67	..60	..57	..50	52 in.
54 in.	1.23	1.16	1.10	1.04	..97	..91	..84	54 in.	..81	..75	..70	..63	..59	..52	54 in.
56 in.	1.27	1.21	1.14	1.07	1.01	..94	..87	56 in.	..84	..78	..72	..65	..62	..54	56 in.
58 in.	1.32	1.25	1.18	1.11	1.05	..97	..90	58 in.	..87	..80	..75	..67	..64	..56	58 in.
60 in.	1.39	1.32	1.24	1.17	1.10	1.02	..95	60 in.	..92	..84	..78	..70	..67	..59	60 in.
62 in.	1.44	1.37	1.29	1.22	1.14	1.07	..99	62 in.	..95	..88	..81	..73	..70	..61	62 in.
64 in.	1.49	1.41	1.33	1.26	1.18	1.10	1.02	64 in.	..99	..90	..84	..76	..72	..63	64 in.
66 in.	1.54	1.46	1.38	1.29	1.21	1.13	1.05	66 in.	1.02	..93	..87	..78	..74	..65	66 in.
68 in.	1.58	1.50	1.42	1.33	1.25	1.17	1.08	68 in.	1.05	..96	..89	..80	..76	..67	68 in.
70 in.	1.63	1.54	1.46	1.37	1.29	1.20	1.12	70 in.	1.08	..99	..92	..83	..78	..69	70 in.
72 in.	1.71	1.62	1.53	1.44	1.35	1.26	1.17	72 in.	1.13	1.04	..97	..87	..82	..72	72 in.
74 in.	1.76	1.67	1.58	1.48	1.39	1.30	1.21	74 in.	1.17	1.07	..99	..89	..85	..74	74 in.
76 in.	1.81	1.71	1.62	1.52	1.43	1.33	1.24	76 in.	1.20	1.10	1.02	..92	..87	..76	76 in.
78 in.	1.86	1.76	1.66	1.56	1.47	1.37	1.27	78 in.	1.23	1.13	1.05	..94	..89	..78	78 in.
80 in.	1.90	1.80	1.70	1.60	1.50	1.40	1.30	80 in.	1.26	1.16	1.07	..97	..91	..80	80 in.
82 in.	1.95	1.85	1.75	1.64	1.54	1.44	1.34	82 in.	1.29	1.18	1.10	..99	..94	..82	82 in.
84 in.	2.00	1.89	1.79	1.68	1.58	1.47	1.37	84 in.	1.32	1.21	1.13	1.01	..95	..84	84 in.
86 in.	2.14	2.03	1.92	1.80	1.69	1.58	1.47	86 in.	1.41	1.29	1.20	1.08	1.02	..89	86 in.
88 in.	2.19	2.08	1.95	1.84	1.73	1.62	1.50	88 in.	1.44	1.32	1.23	1.11	1.04	..91	88 in.
90 in.	2.24	2.12	2.00	1.89	1.77	1.65	1.53	90 in.	1.48	1.35	1.26	1.13	1.07	..94	90 in.
92 in.	2.29	2.17	2.05	1.93	1.81	1.69	1.57	92 in.	1.51	1.38	1.29	1.16	1.09	..95	92 in.
94 in.	2.34	2.22	2.09	1.97	1.85	1.72	1.60	94 in.	1.54	1.41	1.31	1.18	1.11	..98	94 in.
96 in.	2.39	2.26	2.14	2.01	1.89	1.76	1.64	96 in.	1.58	1.44	1.34	1.21	1.14	1.00	96 in.
98 in.	2.49	2.36	2.23	2.10	1.97	1.84	1.71	98 in.	1.64	1.51	1.40	1.26	1.18	1.04	98 in.
100 in.	2.54	2.41	2.27	2.14	2.01	1.87	1.74	100 in.	1.67	1.54	1.43	1.28	1.21	1.06	100 in.
102 in.	2.59	2.46	2.32	2.18	2.05	1.91	1.78	102 in.	1.71	1.57	1.45	1.31	1.23	1.08	102 in.
104 in.	2.64	2.50	2.37	2.23	2.09	1.95	1.81	104 in.	1.74	1.60	1.48	1.33	1.26	1.10	104 in.
106 in.	2.69	2.55	2.41	2.27	2.13	1.99	1.84	106 in.	1.78	1.63	1.51	1.35	1.28	1.12	106 in.
108 in.	2.74	2.60	2.46	2.31	2.17	2.02	1.88	108 in.	1.81	1.66	1.54	1.39	1.31	1.14	108 in.
110 in.	2.91	2.76	2.61	2.45	2.30	2.15	2.00	110 in.	1.92	1.76	1.63	1.47	1.38	1.21	110 in.
112 in.	2.97	2.81	2.65	2.50	2.34	2.19	2.03	112 in.	1.95	1.79	1.66	1.49	1.40	1.23	112 in.
114 in.	3.02	2.86	2.70	2.54	2.39	2.23	2.07	114 in.	1.98	1.82	1.69	1.52	1.43	1.25	114 in.
120 in.	3.18	3.01	2.84	2.68	2.51	2.34	2.18	120 in.	2.09	1.92	1.78	1.60	1.50	1.32	120 in.
128 in.	3.60	3.41	3.22	3.03	2.84	2.65	2.46	128 in.	2.32	2.16	1.97	1.82	1.63	1.48	128 in.
132 in.	3.92	3.72	3.51	3.30	3.10	2.89	2.69	132 in.	2.52	2.35	2.14	1.95	1.77	1.61	132 in.
136 in.	5.00	4.73	4.47	4.21	3.95	3.68	3.42	135 in.	3.20	2.98	2.75	2.51	2.29	2.09	135 in.
144 in.	5.45	5.16	4.87	4.59	4.30	4.01	3.73	144 in.	3.49	3.24	2.95	2.69	2.46	2.24	144 in.

On widths above 144 inches to 208 inches Special Net Prices will be named on application. Widths not specified, based on next wider width.

WOOL SHRINKAGE AND DUSTSTORMS

We have received two samples of wool grown on stations lying not more than 180 miles apart. The quality of the samples does not greatly differ, but while under normal conditions the value should not vary more than a good penny (2 cents) per pound, one sample is fully 6d. (12 cents) worse than the other. One is an average sample taken from the wool shorn at a well-known station on the Western plains, about 300 miles north of Adelaide. This head station was formed out on the plain, a few miles from the Flinders Ranges, and, as usual in such places, not a blade of grass or herbage or edible bush is to be seen for miles. The whole surroundings are as bare as a macadamized road, and are subject to frequent and terrible duststorms.

The sheep were mustered for shearing, but before any could be got into the shed a gale arose which raised a blinding "brick-duster" that lasted all day, with disastrous consequences to the wool. Never during an experience of more than half a century do we remember to have handled a sample containing so much sand, dust and otner portions of the free-hold. The wool when tested in the scouring pan and on the combing machine will certainly not yield 25 per cent. of top and noil.

An owner of a back-block station who sent his wool to market in this state was once told in future to send along with the wool a supply of spades, with which to shovel the wool out of the bales into the scouring pan. The odd thing is that the owner of the clip will probably lose little or nothing, for the increase in the weight will almost certainly make up for the decrease in the price obtained in the Adelaide market this season as compared with last. In normal years the wool yields about 43 per cent. of top and noil.

The other sample is sent by a celebrated owner and breeder whose fine pastoral free-hold is in the famous far north district. and lies about 120 miles north of Adelaide. Never before has this well-known wool been worth so much as it is this year. It is so light in condition that it will make fully 55 per cent. of top and noil. It is much finer than usual, being almost if not altogether of 70s quality. While not quite so deep in staple as last season, it is perfectly sound and entirely free from burr or other vegetable matter. There is much to be learned from these samples. A pessimist on examining the clip ruined by the duststorm would jump to the conclusion that this year's clip was very inferior in every way to an average one, while an optimist on examining the other sample would go to the opposite extreme and think the South Australian clip the best on record.—The Manchester Guardian.

FOUR YEARS OF SAVINGS BANK LIFE INSURANCE

On Oct. 31, 1912, the fourth financial year of Massachusetts savings bank life insurance was completed. On this date there were 6,665 policies in force representing insurance to the amount of $2,531,409. The four savings insurance banks show a total premium income of $101,632.27 for the financial year ending Oct. 31, 1912. This is an increase of 33.1 per cent. over the premium income of the preceding year.

There are now 175 agencies in manufacturing establishments, and the business men of Massachusetts have given this movement their most cordial cooperation.

Among new agencies recently established are: Atlantic Works, East Boston; Revere Rubber Company, Chelsea; Frank Mossberg Company, Attleboro; Samson Cordage Works, Shirley; Isaac Prouty & Company, Inc., Spencer; National Blank Book Company, Holyoke; James Hunter Machine Company, North Adams; and Arnold Print Works, North Adams.

The Massachusetts Savings Insurance League, with headquarters at 161 Devonshire St., Boston, is sending lecturers and instructors at its own expense to all parts of the State to educate the people to an intelligent knowledge of the principles of insurance and the inducements to thrift and savings offered by this Massachusetts plan, which makes it possible for wage-earning men and women to make reasonable provision by small monthly payments out of current earnings against the contingencies of the future.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

GEAR CONSTANT FOR A GILL BOX

Editor Textile World Record:

I enclose drawing showing the gearing on a worsted gill box. Please explain how to find a constant for calculating easily the draft produced by any given change gear, or the change gear required for any given draft. Dorr (2095).

The draft of a gill box is the ratio between the speed of the book or feed rolls and the speed of the front or delivery rolls. If the front rolls deliver 8 yards to every 2 yards fed by the back rolls the draft is (8 ÷ 2) = 4. In the example given by "Dorr" gears 1 and 2 may be eliminated from the calculation because they precede the change gear and drive both back and front rolls, so that their size and speed have no effect on the relative speeds of the front and back rolls. Gears 4, 5 and 11 are eliminated because they are intermediates and have no effect on the ratio. In the following calculations the diameter of the roll is for convenience substituted for the circumference, the final result being the same.

The length fed by the back rolls for each revolution of the change gear shaft taken as a unit, is calculated as follows:

(18 × 15 × 3) ÷ 70 × 70 = 810 ÷ 4,900.

The length delivered by the front rolls for each revolution of the change gear shaft taken as a unit, is calculated as follows:

(45 × 2) ÷ 60 = 90 ÷ 60.

The draft of the machine is equal to the length delivered by the front rolls divided by the length fed by the back rolls or:

(95 ÷ 60) ÷ (810 ÷ 4,900) = 9.07 draft.

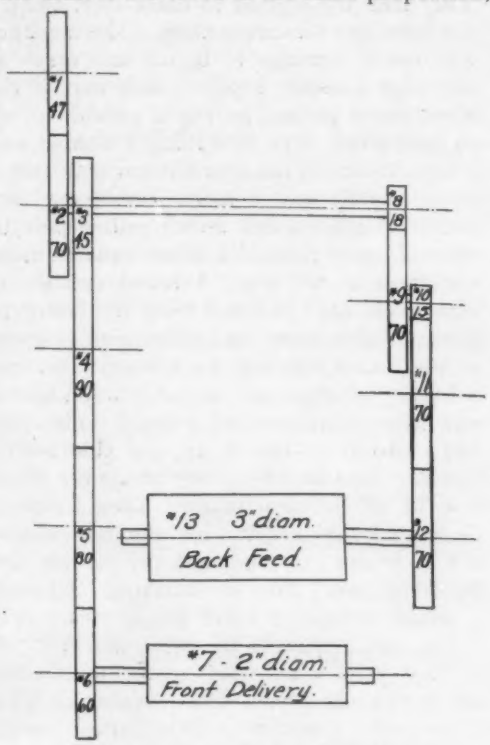
This calculation may also be made as follows:

(95 ÷ 60) × (4,900 ÷ 810) = 9.07 draft.

Restoring all the factors to the last formula we have

(45 × 2 × 70 × 70) ÷ (60 × 18 × 15 × 3) = 9.07 draft.

With a change gear having 45 teeth the draft is 9.07. If this gear is increased in size the draft is increased in the same proportion,



THE GEARING ON A WORSTED GILL BOX.

because the speed of the front or delivery rolls is increased while the speed of the back or feed rolls remains the same. This gives:

45 : 9.07 : : gear : draft, or : gear ÷ draft = (45 ÷ 9.07) = 4.96.

It follows that:

draft × 4.96 = change gear.

change gear ÷ 4.96 = draft.

Ex. Find change gear to give a draft of 5. 5 (draft) × 4.96 (constant) = 25, change gear.

Ex. Find draft with a 40 tooth change gear. 40 (change gear) ÷ 4.96 (constant) = 8.06 draft.

BLEACHING AND DYEING MOSQUITO NETTING

Editor Textile World Record:

I have read in your November issue the reply to "Gaynor" regarding the bleaching and dyeing of mosquito netting. Some years ago I was engaged as boss bleacher and finisher. in a small lace curtain mill They had just started to make lace, but did not have any bleaching plant. The manager told me to arrange to bleach and finish at the least possible expense, and that if the work was a success he would provide an up to date plant. The first thing I wanted was a kier, but could not find an iron tank that I could change into a kier. I told the carpenter to get enough 2-inch yellow pine to make a water tight box 6 feet square inside and open at the top. I found enough 1-inch steam pipe to reach from the boiler to the kier, also water and drain pipe, a piece of 3-inch cast iron pipe for a vomit pipe, and a bonnet for the vomit pipe. I found a second hand tom tom and a hydro extractor, and two old oil barrels to mix chloride of lime in. One barrel was set beside the other to draw off the clear liquor. Then I picked up an old iron pot for melting the caustic and soda ash in. This was my rig for the bleaching end. Now for finishing. I found a starch mangle, a small set of steam cylinders and a cylinder tentering machine. I did not need a calender as the tenter did the stretching, drying and calendering. In three weeks I started with the above outfit and did so well that I could bleach in three days all the lace they could make in a week. In the meantime the manager looked around for something to fill up the time. We had the steam and the bleaching plant such as it was, but we did good work. The plant has become one of the largest curtain mills in the country. One day the manager came along with a small sample of mosquito netting and wanted to know if I could bleach, dye and finish it. I told him to send for a piece and I would try. Never having handled any of that class of goods I did not say for certain that I could handle the goods successfully. When the piece came along it had to go without singeing, because we had no facilities for doing that work. I put the piece of netting in the kier along with the lace goods and gave it the same treatment. When taken out it was in good shape. Then I put it into the tom tom and gave it a good washing in boiling water. I had a piece of lace goods along with it. As was my custom in handling lace, I put in a mixture of chloride of lime and caustic soda that I had mixed in advance. Soap was added and the bleaching and scouring were done at one time. When white, the goods were washed, then soured in muriatic acid and washed well. Then I gave the pieces a light soaping, part of the soap being left in the goods. I knew from experience that my lace goods would be all right and was glad to find that the mosquito netting was all right also. The netting had to be a brown shade so I mixed some Bismarck Brown and Steel Gray in separate buckets. After a few tries I put the color into the starch mixture and ran the netting through the starch mangle, dried it over cylinders, took it back and starched it again; this time I put the piece over a tentering machine and was glad to find that it was right. We had all we could do until our lace business took all of our time.

Hector.

THE CAMPBELL COTTON PICKER

Editor Textile World Record:

We have an inquiry from India for full particulars and price of the Campbell cotton picker. As we believe this is a machine made in the United States, we shall be glad to have you put us in touch with the makers of this picker.

Lombard (2100).

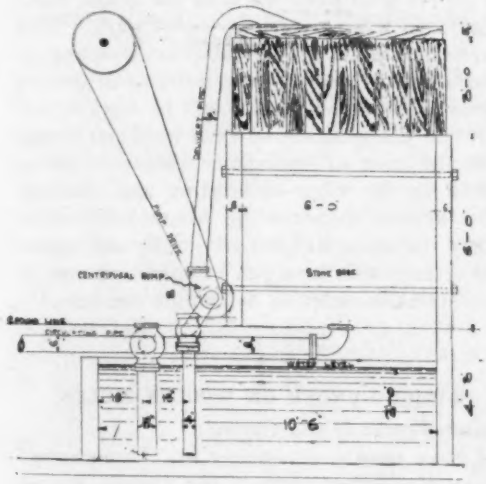
The Campbell cotton picker is built by the Price-Campbell Cotton Picker Corporation, 24 South William St., New York. The company claims to have advance orders for a year's production and have not yet attempted to enter foreign markets. Additional particulars regarding this machine, including the price at which it is sold, have been forwarded to "Lombard."

BLEACHING LINTERS

Editor Textile World Record:

Please give information relative to the bleaching of raw cotton, particularly the lower grades, such as linters, etc. We would like to get the best formula for this work, chemicals used, the time consumed in each process and the latest machines used. Mulberry (2074).

A good plant for bleaching a ton of cotton waste or linters per day consists of the following machines: A high pressure boiling kier with outside circulation, heater and centrifugal pump to work at 20 to 40 lbs. pressure. A bleaching cistern as shown in the



SIDE ELEVATION SHOWING WELL IN SECTION

illustrations. The finishing machines are made on the wool scouring principle, but without the squeeze rollers. Two good hydro-extractors and a continuous drying machine.

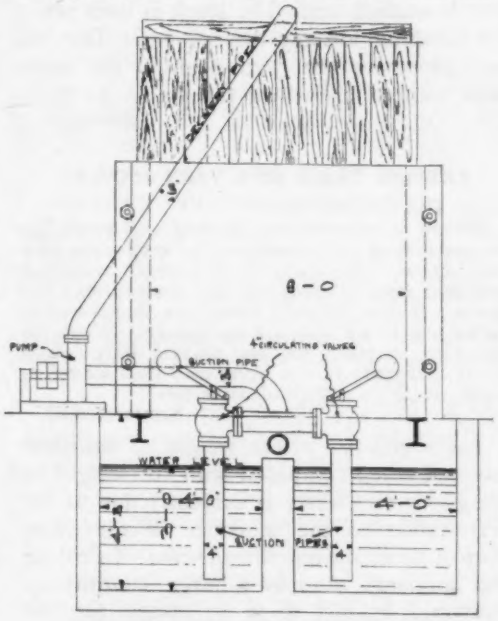
Prepare a solution as follows:

1 to 2 per cent. caustic soda or 4 to 6 per cent. soda ash.

1/4 per cent. silicate of soda.

1/4 per cent. tallow soap.

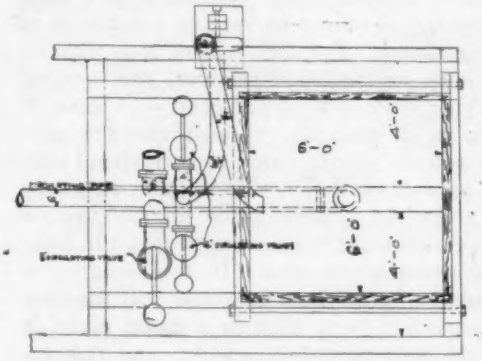
Dissolve in a tank above the kier with the amount of water required. Fill the boiling kier with dry stock and when full commence to run the liquor in. While this is going on slowly add more stock. When full enough cover over with a sheet made of burlap. Run the remainder of the liquor on and start the pump. Work for 2 or 3 hours. Turn the steam on the heater and raise pressure to 20 pounds. Shut steam off the heater and work 3 to 4 hours. Then blow off steam.



END ELEVATION SHOWING SECTION OF WELL

Wash well and drain. The stock is then ready for the bleaching cistern.

Have the bleaching liquor at 3/4° to 1° Tw. The pump should be at work as the



PLAN

stock is being turned over. When all the stock is turned over work in the liquor for 3 to 5 hours according to quality. Then wash well.

If the cotton is for spinning use bisulphite of soda. If for medical or jewelry pur-

poses sour with muriatic acid at 3/4° to 1° Tw. for 1 1/2 to 2 hours. Wash well and test with Methyl Orange to see if all the acid is washed out. The stock is then ready for finishing for any desired use. The last two processes are carried on in the same tank without disturbing the stock.

Morocco.

KEEPING TRACK OF A YARN ACCOUNT

Editor Textile World Record:

We are manufacturers of hosiery and would like information as to a good way to keep track of a yarn account. We always keep a record of what is received, what is used, and the amount used per dozen. If five hundred dozen are manufactured during a week we calculate accordingly. When the inventory is taken we are always short, which shows that more yarn is being used than we calculated. How do mills look after this?

Knitter (2090).

The shrinkage in the weight of the yarn received when compared with the weight of the goods and waste is evidently due to the evaporation of the moisture in the yarn. Cotton yarn, during the process of carding and spinning, absorbs a large quantity of moisture; in fact it is necessary for the proper working of cotton to have considerable moisture in the rooms, which is obtained by the use of humidifiers. It will be found that when the yarn is received by the manufacturer, the weights are nearly, but not exactly correct. The yarn may have been subjected in transit to varying conditions of evaporation. For this reason it is difficult to keep an accurate account, the weights varying from 3 to 6 per cent. A case of yarn is, for example, received from the spinner and the weight found to correspond with the amount on the invoice; another case may be stored in a warm place for say two or three weeks and then brought into the knitting room to be used. If it is weighed it would be found short in weight. If the case of yarn had been kept in a damp place, it would have gained in weight, and this increase would disappear in the winding and knitting. This is one reason why hosiery weighed as the goods come from the same machine during the day will vary in weight. On Monday morning in hot weather when the yarn has been exposed on bobbins over Sunday, it will be found that the goods will weigh less than those knit during the day from yarn just received from the spinners.

Take as another illustration, a roll of cloth for underwear which has been weighed as it comes from the knitting machine, then washed, dried and weighed again. It will be found to have lost from 5 to 7 per cent. in weight, as a result of the loss of the moisture in the yarn when the goods were weighed first. Owing to the variation in the loss of weight due to evaporation, the only accurate way to determine the cost of yarn used in the manufacture of a given quantity of goods is to keep track of the goods manufactured from a certain lot of yarn. This yarn should be wound and knit separately and a record made of the number of dozens obtained. In this way it will be easy to determine the quantity of yarn used per dozen and the cost of the same, allowance being made for the waste in knitting and winding. This system may not be practicable where many different weights of goods are made, but tests of this kind can be made on one or two styles in order to determine the loss.

Lafayette.

WINDING-UNDER ON WOOLEN MULES

Editor Textile World Record:

I have read your answer to "Tippecanoe" in the November issue of the Textile World Record in regard to winding under on woolen mules. I would like to state a few practical points worked out in my experience in the mule room. A high spot in the tracks will cause winding under. When the mule backs off, the faller locks and rests on a stud connected with the builder-arm, which has a roll connected on the end that runs on the builder rail. If all the parts are in perfect order so that there is no lost motion, the faller can wind only to a given point up or down. If the backing off chain is too long, allowing the mule to unwind too much yarn when backing off, the faller will dip and cause the yarn to wind under. The faller fingers may be out of line. Some of them may be too low. There may be a high place in the track so that the carriage is forced up a little, causing the faller to dip just enough to wind under, especially if there is a large

shoulder or seat on the bottom of the bobbin. If there is a low place in the track it will cause a more open wind on the bobbin and a longer build. The front builder shoe may not be set right, the builder rail dwelling too long on top of the shoe before starting down the incline of the shoe or shaper, as it is sometimes called.

Woolen Spinner.

KAPOK

Editor Textile World Record:

Can you tell what kind of fiber the enclosed sample is? Is it used to any considerable extent in the textile trade? Lincoln (2094).

The sample of short, silky fiber submitted for examination is doubtless a species of "silk cotton," so called, a substance belonging to the class of surface fibers, the down produced in the seed pods of a score of species of trees or shrubs growing in many parts of the world. The hairs which envelop and protect the seed form the fiber. Many species belong to the genus Bombax, trees abounding in Central and South America, India and other Eastern lands. A species of Calotropis inhabits Africa, Persia, India and Ceylon. The seed pods of the common Asclepias, or milkweed, which grows wild in the United States, produce silk cotton. There are other genera, but the species best known commercially is Eriodendron anfractuosum, which supplies the Kapok of commerce, largely produced in Java, but also found in South America, tropical Africa, India and Ceylon.

These seed hairs (or silk cotton) are too short, too smooth and too brittle to be spun, and have no felting qualities. Their principal use is for wadding or stuffing, hence used in upholstery. Efforts have been made from time to time to utilize the material by mixing with other fibers, but with no practical results. Long ago a French concern used 20 per cent. of Asclepias down with 80 per cent. of wool in a fabric called "silver cloth." It has been experimented with in Russia also. In the London Exhibition of 1862, mudar floss samples, or Calatropis fiber (seed hairs) were shown, together with fabrics from the same made in India. In this instance the fabrics were mixed floss and cotton, but could only be regarded as novelties.

The fiber is usually creamy white in color, though that from some South American species of Bombax is much darker, even of a brownish shade. Kapok is imported into the United States in small quantities, from Java.

C. R. Dodge.

PRICES FOR COTTON UNDERWEAR

Editor Textile World Record:

Can you give me a statement showing the average wholesale market price of ladies' knit cotton underwear, of the 25-cent grade, weighing approximately 3 1/2 pounds? We wish to learn what the average of the market has been for several years past, if such information can be had in condensed form. Lenoir (2101).

We referred this inquiry to one of the leading dry goods dealers in the country and received the following reply:

The following scale gives the price we have paid each year for the past nine years for our most standard line of summer weight cotton ribbed underwear. This line weighs about 3 1/2 pounds, is made by a very reputable manufacturer and very closely represents the fluctuation in price of this class of merchandise:

1904...$2.00	1907...$2.00	1910...$1.95
1905... 1.95	1908... 2.10	1911... 2.00
1906... 1.85	1909... 1.95	1912... 1.95

These prices are subject to a discount of 6 per cent. for ten days' payment. I trust this information will be of benefit to you.

Edenton.

A PASTING MACHINE

Editor Textile World Record:

Kindly advise us if there is a machine for pasting or gumming labels on the market?

Sabine (2093).

There is a machine called the Universal Pasting Machine, which applies the paste evenly and rapidly without wasting to the label and without soiling the printed side of the label. We believe the machines are made for either power or hand operation. No. 1 size takes any label up to 5 1/2 inches wide and costs $10.00; No. 2 size takes any label up to 8 inches wide and costs $20.00.

Knitting Department

THE KNIT GOODS SITUATION

Manufacturers of knit underwear have shown less inclination to open their lines this year than for several seasons back and at this writing several of the more important manufacturers are not as yet making quotations. It is learned that a couple of lines were opened for a day or two, but were withdrawn when it became evident that the raw cotton market was going kiting.

Women's six-pound carded peeler vests and pants have been quoted at $1.90 by one manufacturer and $2.00 by another. Seven-pound goods are offered at $2.10. Carded yarn combination suits, weighing ten pounds have been offered at $3.62 1/2 for peeler and $3.75 for bleached.

The Avalon Knitwear Co. have aroused considerable discussion among many factors in the market on account of quoting their line at last year's prices, namely, women's eight-pound combed goods at $3.50, while other manufacturers of this class are asking $3.75 for eight pound, $3.62 1/2 for 7 1/2 pound and $3.50 for seven pound. Prices on eleven-pound lines of combed suits are being held quite generally at $6.75, practically last season's quotation.

Some lines of men's cotton suits that sold for 1912 as low as $6.25 are being held very firmly at $6.75 for 1913, notwithstanding the fact that the Avalon continue to offer the same line of men's suits that were sold last year at the same price, namely, $6.75.

The Standard Knitting Co. of Knoxville opened their line of men's cotton ribbed goods as follows:

10-pound shirts and drawers at $3.12 1/2,
11-pound shirts and drawers at $3.25,
12-pound shirts and drawers at $3.40.

This concern also makes two lines of men's combination suits: a 16-pound line at $6.25 or the same line with mercerized collarette at $6.50; and an 18-pound line with mercerized collarette at $7.00.

The Tremont & Suffolk Mills' two threaded cotton ribbed shirts and drawers are being shown only in the 11-pound weight. The buyer has the option, however, of buying this line in the ordinary carded yarn at $3.37 1/2, or of paying $3.50 for the goods to be made of yarn that has been bleached and tinted.

The velvet lined goods for children made by the Frisbie-Stansfield Co. and on which the business has increased considerably of late, is prices for 1913 at $1.50, rise 25 cents, less 20 per cent.; while a similar line of merchandise made by J. W. North & Son of Elizabeth, N. J., is being sold at $1.50, rise 25 cents, less 25 per cent. Children's combination suits of this heavy fleeced rib fabric are being sold from $2.87 1/2 to $3.00 on size 2, rise 25 cents, and so far as we can learn the buyers who have been in the market have placed liberal orders for this class of merchandise.

It is believed that stocks in the hands of jobbers and retailers have been worked down to small proportions. Unless the unforeseen happens the indications are that manufacturers will not have any difficulty in selling up their production for the coming year, notwithstanding the advance prices which must occur on account of higher raw materials, higher labor costs and restricted production.

Many buyers are in the market and are placing their orders quite freely on the lines that have been opened thus far. These buyers are giving earlier delivery dates than usual on most of the orders being placed.

There have been only a few lines of men's fleeced shirts and drawers shown thus far and these have carried with them an advance of 20 to 25 cents per dozen. These have been shown by one of the large factors in the fleeced goods business and the indications are that this will represent the advance during the coming season on this line.

SWEATERS

Extremely active business on sweater coats of all kinds has been the rule since the lines were opened and reports are current that several lines are sold up, among which are Hathaway & Reynolds, Puritan Knitting Co., Yund, Kennedy & Yund, Superior Knitting Co., Atlantic Knitting Mills, Quaker City Knitting Mills and H. Gernshyn & Brother. Prices that have been obtained have ruled somewhat higher all along the line. Men's worsted plaited coats with Byron collar and pockets that sold at $13.50 last year, have been priced at $14.25. The Yund coat that was sold through William Iselin & Co. at $16.00 last year has been improved by putting on a shaped shawl collar and the price advanced to $18.00; and boy's sizes in this same line have been sold at $16.00. Heavy weight coats made of worsted face and wool back have been advanced from $22.50 to $24.00, and some lines of shaker knit coats have been sold this season at $36.00, which is an advance of $2.00 per dozen over last year's price.

The situation on lines of cheap cotton coats that retail at 50 cents is an interesting one. There are practically only three manufacturers of this class of goods and two of them are located in Little Falls. One of the Little Falls manufacturers took some orders on his line at the beginning of the season, but it is understood now that neither of these manufacturers are offering this grade of goods, fearing it will not be possible to settle the labor difficulty there, so as to enable them to continue making this class of work.

The Atlantic Knitting Co. are offering a new line of boy's coats on which buyers have placed liberal orders. This is a line of coats made in olive shade with belt, pockets and epaulets. These are being shown as suitable for boy scouts and are made at a price to enable them to be retailed at $1.25 to $1.50.

Buyers generally are paying very little attention to the lines of ladies' and misses' coats, as it is found that the women and young ladies are buying their sweaters from the men's and boy's lines. They are selecting plain stitch garments almost entirely and are not even asking to have the buttons reversed.

Buyers are evidently convinced that maroon is to continue in popular favor another season, as the orders so far placed call for a very heavy proportion of this shade. Navy is becoming somewhat more popular and is sharing the honors with oxford in some localities.

Shaker knit coats continue to have the popular call and cardigan stitches are not sold freely above $24.00 per dozen. Shawl or ruff neck collars are being taken mostly, although the double Byron collars are following closely. Very few V necks are being bought. The rope or jumbo stitch coats are selling very well and several sweater manufacturers are putting in new machinery to make this class of work.

HOSIERY

Notwithstanding the fact that the hosiery business is well protected by the present tariff and that the chances are a portion of that protection will be taken away another year, the business is exceptionally good at the present time and the market is one in which the buyer is more anxious to go to the seller than vice versa. Conditions are such as to insure a firm market for some time to come. The hours of labor have been reduced so that the capacity of the mills is considerably less than before. Labor is extremely independent and scarce. Raw materials are advancing in price nearly every day and jobbers are having a demand for merchandise in such volume as to cause them to want to place liberal orders. These conditions must all be reflected in higher prices and we learn that while some makers of wool hosiery are quoting the same prices as last year, there is some difference in the merchandise. Other makers are making advances of 2 1/2 to 7 1/2 cents on cotton and wools and as high as 7 1/2 to 10 cents on worsteds.

Some few duplicate orders have come to hand and on coarse gauge goods during the past month. These are for delivery during the months of March and April and at advance prices. Orders for fine gauges have been tendered, but it has been necessary for manufacturers to refuse these, as their fine

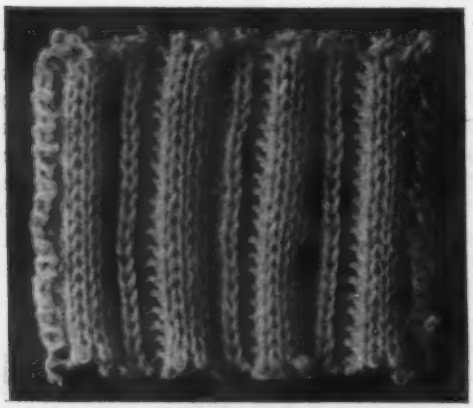
gauge machinery is sold up for the entire season.

Raw silk has advanced sufficiently of late to effect the silk hosiery business and prices on 50-cent grades have been raised 12 1/2 to 25 cents per dozen.

A SWEATER FABRIC

BY DENBIGH

The sample shown in the illustration was made on a 12 gauge Leighton machine with a special grouping of the needles and specially made plate cams. The cloth is used in the manufacture of sweaters and can be made out of wool or worsted yarns with or without a cotton back. The fabric under consideration is all 2/20s cotton and wool mixed and knit on a 2, 4 or 8 feed machine. The needles must be grouped 4 in and 2 out



A SWEATER FABRIC

in the plate and 3 in 1 out, 1 in 1 out in the cylinder, repeating all around the cylinder and plate, the three needles in the cylinder coming directly opposite the two out in the plate. The fabric must be knit very loose to get good results. As a result trouble from drop stitches occurs very frequently unless a plate cast-off cam is used that will hold back 4 or 5 needles before starting to release them. After getting the machine properly adjusted for this pattern there will be very little trouble in running any kind of yarn if they are heavy enough to fill the gauge.

THE ACME HOSIERY AND TEXTILE BINDER

The binder, shown in the accompanying illustration, is built by the Acme Staple Co., 112 North 9th St., Camden, N. J. It is a foot power machine for attaching tickets to hosiery, underwear and other textile material. It uses a fine wire pointed staple which will not injure the finest fabric. While the staple is firmly attached to the fabric it can be easily removed when desired. The machine holds 250 staples and is easily loaded. There is also a device attached to the table of the machine (but not shown in the illustration), which holds one dozen or

ACME HOSIERY AND TEXTILE BINDER

more pair of hose. This will increase the production of the machine at least 25 per cent., and make it equal to any wire stitcher on the market. The binder is an inexpensive machine for the hosiery trade. Textile manufacturers having occasion to attach tickets to their goods will find the Acme binder to be a very economical machine. It is of simple construction with no parts that

easily wear out and is sold at a low price. Those interested can obtain samples of the work and further information by applying to the builders.

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

KNITTING MEMORIES

BY CYMBAL

(Continued from November.)

After going over the room carefully and getting everything running right, as I thought, I took my time going through the body frames. Most of them needed a little adjustment, but the cloth they were making was a sight for the cutters. It was full of holes and drop stitches and the stitches were uneven. There was cloth enough to keep the finishing room busy a week waiting for sleeves, so I kept a close eye on the sleevers. Sending the knitters home for a few days I with a helper started to fix up the body machines.

We started on the first frame in the line, took it down, cleaned and looked it over. We washed the dirt out of the needles with benzine and after doing a good all around job we set the machine up and got the cloth on. We trued up the stitch with a foot rule. There was a big improvement in the cloth, but the garment was too long and too heavy. Taking out a few links of the chain, we tried another. The garment was too heavy, but right in length. We took out a few more links and raising the dial a trifle to lengthen the stitch we got the right length and weight. We then turned to the next machine. Nearly all of the dials were out of true, and as we cleaned the frames we set them up without needles. I had not done this sort of work over four or five times before and certainly had the time of my life with the dials. There were eight set screws that held the sleeve in the hub and the least turn on any one of them would be apt to knock the hub out of place. I sat in front of the frame, threw the belt on and watched it for a high or low spot. Catching it just right I would stop the frame suddenly and turn the necessary screw a trifle, then try it again. I had no socket wrench, only a flat S wrench about

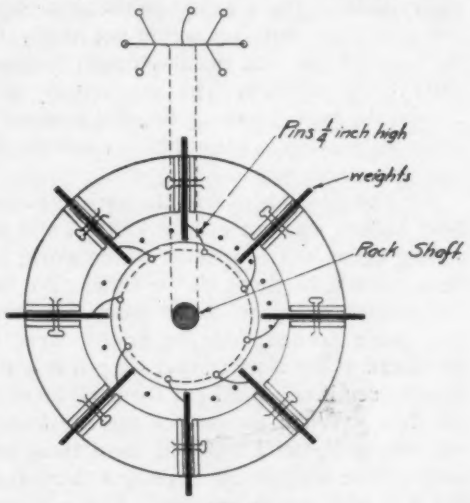


FIG. I.

8 inches long. The wrench was a trifle large for the nuts and slipped easily. My fingers were a mass of cuts and scratches from striking the hub or spindle nuts. I gave a sigh of relief when the job was done to my satisfaction. Knitters in these happy days don't have to worry over a little thing like this, as a socket wrench and a piece of wire does the trick in a few minutes.

Before putting the needles in the frames we sorted them, as the heavy and fine gauge were mixed. This caused most of the holes and made a poor looking piece of cloth. I had noticed on some of the frames as I lifted out the dial that the lugs did not come together as they should. The dial needles had touched the cylinder needles and held the dial still. In other words, the dial was held in position by the needles. The cause of this no doubt was the fact that after putting the dial in position it was not turned to let the lugs meet and the needles were put in any old place. There are dials running today in

this condition. Suppose a dial was enough out of true to let the needles touch on one side, but not on the other. This, in almost every case, would make holes and plenty of them. A few turns of the lug screws to let the dial run ahead so the lugs would not touch would remedy this difficulty. Again, let us suppose we had a new dial cut for an old cylinder. There would be the same number of needles, but they would not mesh, that is, have all the dial needles center between the cylinder needles. The only remedy is to loosen the lugs, bringing the dial needles as close as possible to the cylinder needle the way the frame turns.

We had all kinds of trouble, for the former boss knitter was not even a knitter, and the selling agent had done most of the work, but he could not be there all the time. We had the frames ready to begin work any time they were needed, but the bodies were so far ahead of the sleeves, that we put in a few days to see if we could get them all level on the floor. When we started up, the frames ran very well, but I watched them close and with a little adjustment here and there they did not give much trouble. There was a stop motion for broken or loose ends of yarn which we had put in on trial, but it did not do the work that was claimed for it. There was another stop motion in another mill in town that had been nicknamed "the jigger." It was a round disc, set inside the bobbins on the rack shaft. It was about eight inches in diameter and had weights fastened with a key through slots in the disc. There was also a wire, about three inches long, with a loop end through which the yarn ran. There was one of these for each end of yarn, see Fig. 1. When an end broke this weight was dropped between the pins. These pins were set in a toothed bar that slid back and forth about two inches and about six times to one revolution of the frame. When one of these weights dropped it struck a pin and this sliding bar would either push or pull a rod that knocked off the shifter. It certainly was a funny sight to see that mass of wire and pins bobbing up and down and in and out. The least said of this, the first stop motion, the better. It is almost needless to say that none was ever sold, but this was the beginning of better ones. The electric stop motion came next and passed on. Then there was a mechanical motion that looked like a bird's nest on top of the rack. That also came and went. The next motion, which is being used today, is a simple mechanical idea, small, compact and does not get out of order. It will operate on No. 100 yarn as easily as on No. 10 yarn. There are very few mills that do not use these stop motions on their latch needle machines.

While I was with this firm I made my first Swiss ribbed cloth. It was made from a No. 28 Egyptian cotton, 11 or 12 needles to the inch on the new style Scott & Williams frames. I had the necessary cams and had taken out the needles for a 2 and 2 stitch for about six inches on each side and left the bars in the center. I started the frame and all kinds of trouble began, for the cloth was full of holes where I had taken the needles out. As I remember it was several days before I gave it up. I had put all the needles back in the frame several times and the cloth came imperfect. I certainly was stuck. When a knitter got over his head he always sent for the agent. I sent for him, told him my trouble. He did not look at the frame, but said, "That is simple. Make your cylinder stitch longer." I made the stitch longer, a little at a time until it came right. The stitch on the cylinder was not long enough to ease the yarn on the dial needles where the needles were out.

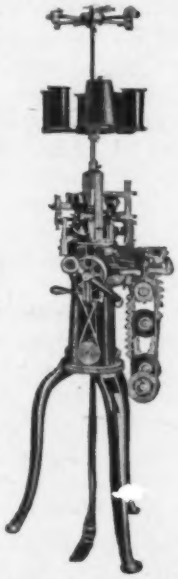
Many years later I happened in a mill near Boston where the knitter was trying to make this same Swiss rib, and had got stuck in the same way. He was supposed to be a good knitter, and in fact I knew he was, but had never made this class of goods. I was glad to help him, even if he did not like the frames I was selling at the time. We had only a few frames on Swiss ribbed goods as they could do better on shaped goods, so after I had them all going I had a chance to look around and found many places for improvement. The winders were too far away, at least 100 feet. The cutting was done in the knitting room and this took up at least one-quarter of the room. I exchanged

places, putting the cutting room where the winders were and setting the winders close to the frames. This brought the whole of my department right under my observation and I could see all that was going on. It also saves time for the knitter in going after yarn.

(To be continued)

THE BRANSON NECKTIE MACHINE

There has recently been put on the market by the New Branson Knitting Machine Co., East Thompson St., Phila., Pa., an improved necktie knitting machine. In addition to patterns previously made on necktie machines, this machine will make all kinds of stripes such as diagonal, vertical, horizontal and block stripes. The mechanism is very simple, with all complicated attachments eliminated, making the machine very



THE BRANSON NECKTIE MACHINE

durable. The diagonal stripe is something that nearly every knitting machine builder has been working on from time to time for years. The new features of this machine enable the constant demand for knitted novelties and something new in neckwear to be met successfully. The Branson Co. will be pleased to send to anyone interested samples of neckties showing the work of the new machine.

KNITTED SKIRTS

BY MAJUBA

The first of these knitted skirts was made with a tuck stitch body and a plain stitch waist band. They were knit with a No. 12 yarn on 17, 18 and 19 inch frames, cut about 8 needles to the inch. We made them 28, 29 and 30 inches long, including the 9 inch waist band. When finished with a wide shell stitch around the bottom, and the edging for the draw ribbon at the top, this length was increased about 2 inches. We made only two styles, a single tuck and a double tuck stitch, and had all the business we could handle. Some time later fancy skirts began to appear. These were of all colors, with

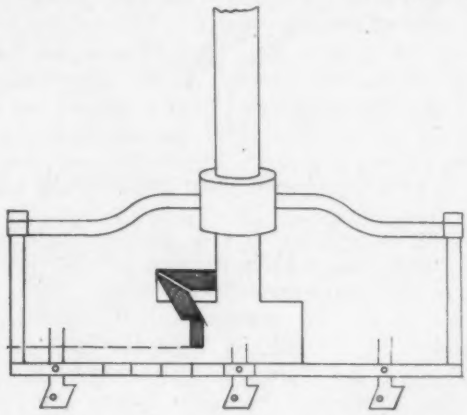


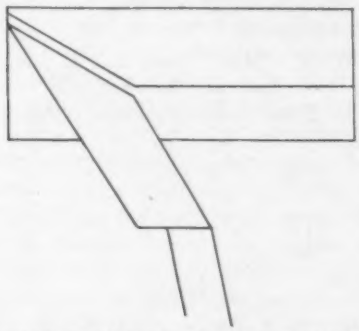
FIG. 1.

fancy stitches and a tight stitch on the last half of the plain waist band. This was an improvement, as a tight stitch at this point kept the waist from stretching out of shape. This tight stitch device was operated from the chain as the high links of the chain were at a certain point. The strap from the chain drum would push in against an elbow, Fig. 1. This in turn would lower the dial for a tight stitch at the finish of the skirt, or where the next one begins at the tuck stitch. The chain would be at the low links again and the dial would rise for the regular stitch.

The patterns are made by hand for the best class of goods, and a striping attachment for the cheaper garments. The hand made pattern machines are made with special chains, and adjusted to stop as required

to piece in the stripe. The automatic striper was never perfect and had to run so slow that it hardly paid to run them.

One pattern that we made was a great seller. It was black and red, the changes being made automatically by having alternate red and black yarn on the rack. This pattern was made on an eight feed machine with movable cams in the dial. We connected four together so when one set was



AN ENLARGED VIEW OF THE SHADED PART IN FIG. 1

tuck the other set was plain. Each set worked from a chain of high and low links, one set always opposite the other. When a new skirt was started it knit about six inches, say of black. When the time came to stripe, the chain would reverse and throw a few courses of red to the face of the garment. This was repeated until the pattern was finished. On the plain waist the effect of the two colors is pleasing. This black skirt is finished in red, that is a red shell stitch, black edging and red draw string.

Other patterns were made with a regular tuck and plain stitch with one end of color all the way on the face. Another pattern had two colors alternating. Another was made with a double tuck, changing to single about six inches before changing to a plain stitch. This double tuck was made only in plain white and Egyptian as the cost of dyed yarn and the weight of the skirt was much more than for other styles and buyers would not pay the price.

The machine used for finishing these skirts around the bottom made a wide shell, perhaps half an inch wide. To put the edging on, a twin needle machine of five threads was used. The placket hole or vent also had a shell stitch the color of the body. All draw strings were the color of the body.

IMPROVED HOSIERY CONSTRUCTION

An improvement in hosiery recently patented has for its object to provide an effective form of turned welt or hem upon that class of stockings in which the knitting progresses from the toe toward the top.

Figs. 1 and 2 are views of two different types of the improved stockings; Fig. 3 is a view of the upper portion of a stocking having another form of hem or welt.

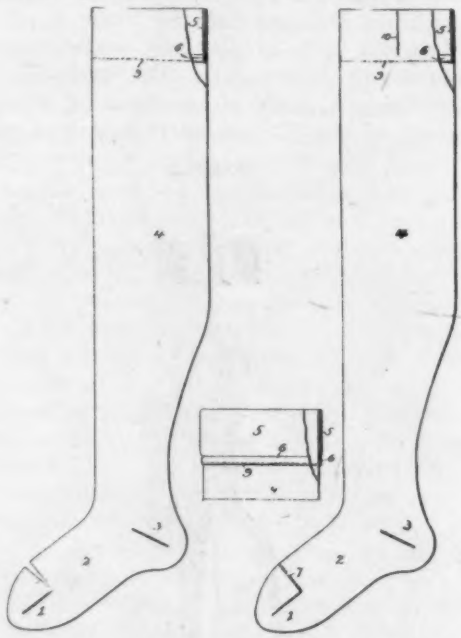


FIG. 1. FIG. 3 FIG. 2

Fig. 1 shows a stocking in which, as the stocking is delivered by the machine, the toe pocket is disconnected from the upper portion of the foot and is subsequently secured by means of an ordinary looping machine, while in the stocking shown in Fig. 2, the uniting of the toe pocket to the top of the foot is effected by the operation of the machine upon which the knitting of the stocking is effected.

The knitting of the stocking shown in Fig. 1 can be effected upon any ordinary type of

knitting machine adapted for knitting a stocking with heel and toe, but equipped with a second set of needles or points corresponding to the dial needles of an ordinary rib knitting machine, and susceptible of special operation so as to transfer their stitches to corresponding needles of the cylinder. In knitting the improved stocking upon such machine, the knitting operation is started upon the cylinder needles and the toe pocket is first formed upon one-half of the needles in the usual way, the other half of the needles being then brought into action and tubular web for the foot, 2, of the stocking being knit until a sufficient length of web for the foot has been completed. The needles around the instep portion of the machine are then retired from action, but permitted to retain their stitches and the knitting of the heel pocket, 3, is effected in the same manner and upon the same needles which were employed in knitting the toe pocket.

When the knitting of the heel has been completed, the instep needles are again brought into action and tubular web for the formation of the leg, 4, of the stocking is proceeded with When the production of this web has continued up to the point at which it is desirable to form the hem, one-half or other desirable number of the cylinder needles are prevented from rising, but retain their stitches and the dial needles or points corresponding to the retired cylinder needles are projected together with the remaining cylinder needles, so that the knitting yarn will be fed to both sets of needles to form uniting loops or stitches upon the dial needles. If desired, every other one of the cylinder and dial needles may first receive the yarn, and may then be retired and the yarn fed to the alternating needles so as to provide a uniting loop or stitch for each wale of the web. After having received this course of loops or stitches, the dial needles are retired, but retain said loops or stitches and knitting is proceeded with upon all of the cylinder needles until a length of web twice as long as the depth of the desired hem or welt, 5, has been produced. While the cylinder needles are depressed the dial needles are projected so as to carry their loops or stitches into position for engagement with the corresponding cylinder needles which are thereupon projected so as to engage the loops or stitches and the dial needles are retracted in order to cast the loops or stitches therefrom onto said cylinder needles.

A sufficient number of courses of stitches are then knit upon all of the cylinder needles to provide a band or strip, 6, of such a width that it is not likely to ravel back to the point of connection of the interned portion of the welt with the leg of the stocking, whereupon the stitches may be cast off of the cylinder needles or the knitting of the toe pocket for another stocking may be started upon one-half of the needles, the stitches being cast off of the other half. The stocking shown in Fig. 2 has the seamless toe-pocket, foot, heel and leg, and also has the top of the toe pocket united to the front portion of the top of the foot by a line of setting-up stitches, 7.

In producing my improved stocking upon a machine of this type, the operation is carried on as usual for the production of the closed toe, foot, heel and leg, but instead of operating the extra set of needles for the production of ribbed fabric at the top of the stocking, the needles are projected only once to receive the course of loops or stitches for binding in the inturned hem or welt and are then retired, holding the loops or stitches which have been applied to them. Plain web is then knit first upon the needles of one needle bed and then upon those of the other needle bed for a length equal to twice the depth of the desired welt, whereupon the loops or stitches are transferred from the extra needles to corresponding main needles, and a few courses are knitted upon the latter to produce the strip, 6, and then the operations are repeated. Fig. 3 shows the upper portion of a stocking having an out-turned welt, with strip. 6. To prevent the edge of the strip from raveling it may be secured by overedge stitches, or it may be sewed by elastic stitches to the leg web, this sewing operation being facilitated by the fact that the wales of the leg web and strip are in register and the sewing follows the courses of the webs. Such retaining stitches are shown at 9.

Dyeing, Bleaching, Finishing, Etc.

DYEING BLACK ON KNIT GOODS

BY J. M. MATTHEWS

For the dyeing of black on knit goods a number of different classes of dyestuffs may be employed, depending on the quality of the color desired, as well as its special properties of fastness, and the cost. The cheapest method of dyeing cotton knit goods is to employ the substantive or direct cotton colors. A large number of these are marketed by different manufacturers, and almost any desired tone of black may be obtained. The direct cotton colors are applied in a very simple manner, using a solution of the dyestuff in a bath containing a considerable amount of common salt or glauber's salt; very often a small quantity of soda ash is added for the purpose of better exhausting the color from the dye bath.

The following method will yield a good black on cotton knit goods by the use of a direct cotton dyestuff:

For 100 lbs. of goods:
- 6 lbs. Patent Dianil Black FF conc. (Farbwerke)
- 35 lbs. common salt.
- 1 lb. soda ash.

The cloth should first be well scoured by boiling in a bath containing 2 lbs. of soda ash and 1 lb. of Monopol oil. This will serve to wet the goods out so that the dyestuff may be readily and evenly taken from the dye bath. The use of the oil will also tend to preserve the softness of the fiber and prevent the cloth from acquiring a harsh feel.

After scouring and squeezing to remove the excess of liquor, the goods are run into the dye bath, the temperature of which should be about 140° F. to start with. After running for about 15 minutes so that the material may become thoroughly saturated with the dye-liquor, the temperature is raised to the boiling point and the dyeing continued for about one hour. The goods are then rinsed off, hydro-extracted and dried.

To obtain a finer tone to the color, this black after dyeing and rinsing may be topped off in a fresh bath containing:

- 1½ ozs. Methylene Blue BB conc. (Metz)
- 3 lbs. of olive oil soap.

The second bath should be used at a lukewarm temperature, and the goods should

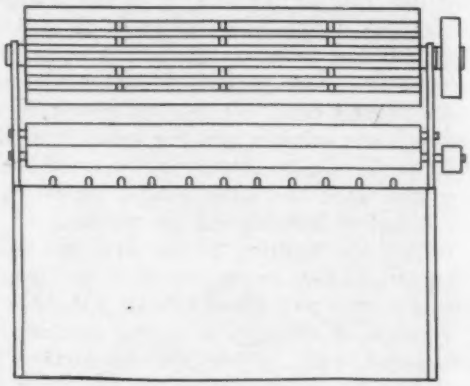


FIG 1

run in it for 20 minutes, then rinsed off, hydro-extracted and dried. A large number of other direct cotton blacks may be employed in the same general manner, and the special one selected will depend to a great extent on circumstances, such as the exact tone of color desired and the cost at which the color is offered.

Knit goods are generally dyed in the roll or piece. Several rolls are tied together, forming a long chain, the number of rolls to the chain being dependent on the weight of the fabric. A wooden dyeing machine, Figs. 1 and 2, is employed, consisting of a tub provided with a revolving winch on top. The chains of cloth are passed over the winch and circulated through the dye liquor in the tub below. Usually from eight to twelve chains are run in one machine side by side. As the goods come up from the liquor they are passed through a set of small squeeze rolls and then run on the revolving winch.

The squeeze rolls and winch should be so set and run at such relative speeds that there is as little tension on the cloth as possible, as the tension while the cloth is running in the dyeing operation tends to stretch the goods out of shape and also materially reduce their elasticity.

The machine employed for the previous wetting-out or scouring of the cloth is similar in every respect to that employed for dyeing. Unless a number of successive lots are to be dyed, the goods may be rinsed off or topped off in the machine used for dyeing, simply running off the dye liquor and refilling with fresh water.

The black obtained by the use of the direct colors, though cheap and easily applied, is not very fast either to washing or perspiration. It is these two qualities of fastness which are most desirable in the case of knit

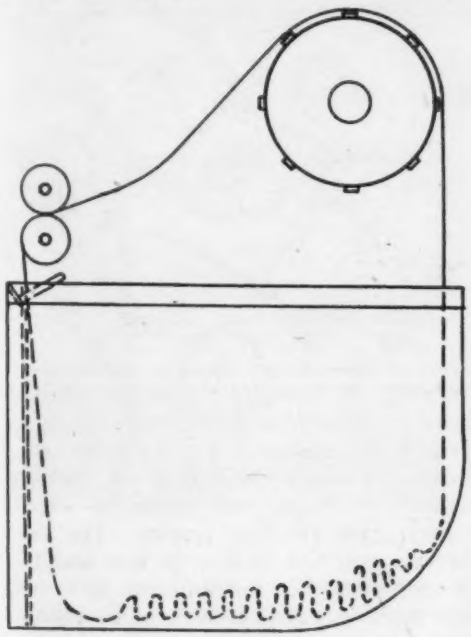


FIG. 2.

goods, as this character of fabric is made into garments which are to be worn next to the skin and which must undergo continual laundering. Black knit goods, however, for underwear are only used for special purposes, such as theatrical tights, etc., and sometimes cheapness of color may be more desirable than fastness.

To obtain a good fast black on knit goods either of two methods is available: (a) dyeing with developed dyestuff; or (b) dyeing with a sulphur black.

The following example will suffice to illustrate the method of dyeing with a developed dyestuff:

For 100 lbs. of goods:
6 lbs. Diamine Black BH.
(Cassella Color Co.)
2 lbs. Soda Ash.
20 lbs. glauber's salt, calcined.

The goods are entered in the dye bath at about 160° F., and run for 15 minutes, then the temperature is raised to the boiling point and the dyeing continued for 30 minutes. The steam is then shut off and the bath allowed to cool down for about 20 minutes. This method allows of a better absorption of the dyestuff than if the bath were kept at the boiling temperature throughout the entire dyeing operation.

The goods are now rinsed off slightly in order to remove the superfluous dyestuff solution mechanically adhering to the surface of the fibers. They are then entered into a fresh bath known as the diazotizing solution. This bath is prepared in the following manner:

5 lbs. sodium nitrite.
5 lbs. sulphuric acid conc.

The nitrite is first dissolved in water and added to the bath, then the sulphuric acid is slowly run in and the liquor well stirred up. This bath is employed cold and the goods are run in it for about 20 minutes.

The goods are then rinsed off and immediately passed into a third bath known as the developing solution, which is made up in the following manner:

1 lb. phenylene diamine.
4 ozs. soda ash.

They are dissolved together in some boiling water and then added to the cold dye bath. The goods are run in this solution for 20 minutes, then rinsed off in a lukewarm and dilute soap solution for the purpose of

brightening and softening the fiber. The black has a very good depth and tone, and is very fast to washing and perspiration This class of blacks is largely employed for knit goods. The cost of dyeing, especially on account of the number of baths, is considerably more than for the direct blacks.

The sulphur dyes form a very desirable class of colors for the dyeing of knit goods, as they are rather cheap, are easily applied in one bath and yield colors that have excellent fastness to both washing and perspiration. The fastness to washing, in fact, is better than for the developed colors. They do not leave the goods as soft and satisfactory as the developed dyes. The following example illustrates the method of applying the sulphur dyes to knit goods:

For 100 lbs. of goods:
10 lbs. Sulphur Black A extra.
(Berlin Aniline Co.)
10 lbs. sodium sulphide (calcined).
5 lbs. soda ash.
50 lbs. common salt.

The goods are entered in the bath at 160° F., and the bath is then gradually brought up to the boiling point and maintained there for 45 minutes or one hour. The goods are then well rinsed off, or better yet, washed in a luke-warm bath containing a little soap and a small amount of olive oil in emulsion. This is for the purpose of softening and brightening the cotton and also of giving a more lustrous and better tone to the color.

The proportions given above for the preparation of the dye bath are for the first bath. If the solution is to be employed as a standing bath these amounts may be very considerably decreased for the second and third baths.

For the dyeing of black on knit goods containing a mixture of wool and cotton it is necessary to employ dyestuffs which are capable of dyeing on both fibers alike or to employ two separate baths, the one for the purpose of dyeing the cotton and the second for the dyeing of the wool.

For a one-bath black on such knit goods the following may be recommended:

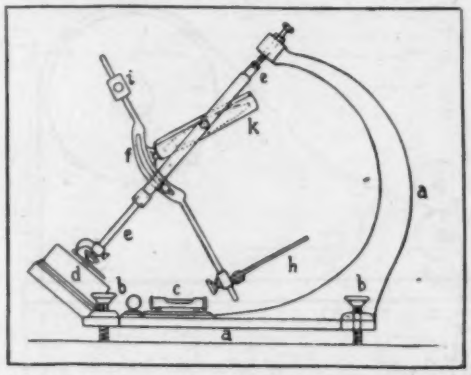
For 100 lbs. of goods:
8 lbs. Azo Half Wool Black T L extra.
(Metz & Co.)
25 lbs. glauber's salt.

The dyeing is started at a temperature of 140° F., and gradually brought up to the boiling point and the dyeing then continued for about an hour. This will give a black having a fine tone of color and of good fastness.

QUICK TESTS FOR FASTNESS OF COLORS TO LIGHT

A recent issue of the "Bruenner Monatschrift fuer Textil-Industrie" contains the following description of the Kallab apparatus for making quick tests to determine the fastness of colors to light:

During the dark winter of 1883 and 1884 I was a director of the dye department of Fabrik Griesheim-Elektron in Offenbach, a. M., and had occasion to make many tests of



AN APPARATUS FOR TESTING FASTNESS OF COLORS TO LIGHT

dyestuffs to determine their fastness to light. The lack of sunshine made the work very difficult and in order to hasten the tests we constructed a rather rude apparatus which, however, gave excellent results. The sunlight was collected by a large lens and the rays concentrated on the sample to be tested. When the colors showed little or no change under this test we proceed to manufacture the respective dyestuffs. In the following summer, when there was plenty of sunlight, we tested in the ordinary way the samples dyed with the same dyestuffs and found that the results confirmed the correctness of those obtained with the apparatus, which is shown in the accompanying illustration. The frame, a, rests on four set adjusting

screws, b, and is adjusted to a horizontal position by two spirit levels, c. The clock work, d, turns the spindle, e e, which supports the part, f, to which is attached the lens, k. An adjustable frame, h, on which the sample to be tested is placed, is fastened by a handscrew to the other end of the part, f. The rays of the sun are collected by the lens, k, and concentrated on the sample placed on the frame, h. The distance between the lens and the sample is adjusted to suit the surface which it is desired to test. The closer the sample is to the lens the smaller is the surface covered by the light and consequently the more intense is the effect produced. In summer it was found that a distance of 8 inches was about right, while in winter it was increased to 10 inches. In the former case the area illuminated was about 2 inches in diameter and in the latter case 3 inches.

THE ACME DYEING MACHINE FOR SKEIN YARN

The machine shown at Fig. 1 is built by the Acme Dyeing Machine Co., 246 Chestnut St., Philadelphia, Pa. It is the invention of James J. Fearon, a mechanical engineer who has had thirty years experience as a designer of dyeing and finishing machinery for textiles. The feature of this dyeing machine is the thorough impregnation of the material by the dye liquor. This results from the continual circulation of the liquor through the skeins, as shown at Fig. 2. The circulating device, Fig. 3, drives the liquor to the top of the tank and then down through the yarn to the bottom, the current being maintained in large volume and at a high pressure. The machine is built so that the direction of the current is changed every five minutes as desired automatically, the

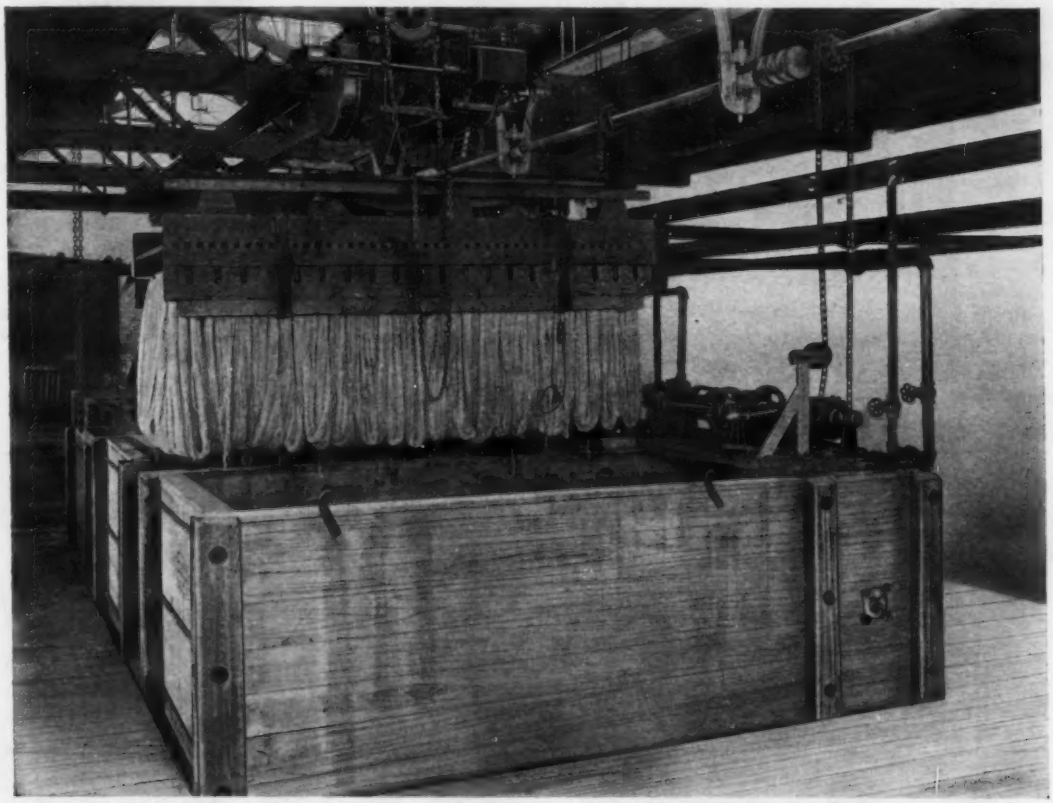


FIG. 1.

liquor passing to the top downward for five minutes and then from the bottom upward through the yarn to the top of the tank. As a result of this circulating system the yarn is colored uniformly without turning the skeins on the sticks. The standard size of the Acme machine will handle 300 pounds of yarn at a time.

The tank is 10 feet long, 4 feet wide and 44 inches deep. The yarn rack is 8 feet long, 47 1/2 inches wide and carries 21 sticks. The rack carrying the yarn is part of a frame attached to the top of the tank and when in position makes a closed tank in which the circulation is maintained. Special sizes to handle from 100 to 500 pounds are built if desired. After the process of mordanting or dyeing is completed the yarn can be lifted by a hoisting device and transported to another tub if desired. The Acme machine is in successful operation in a number of dye works. The builders of the machine will be pleased to give further information and show the machine in operation to anyone interested.

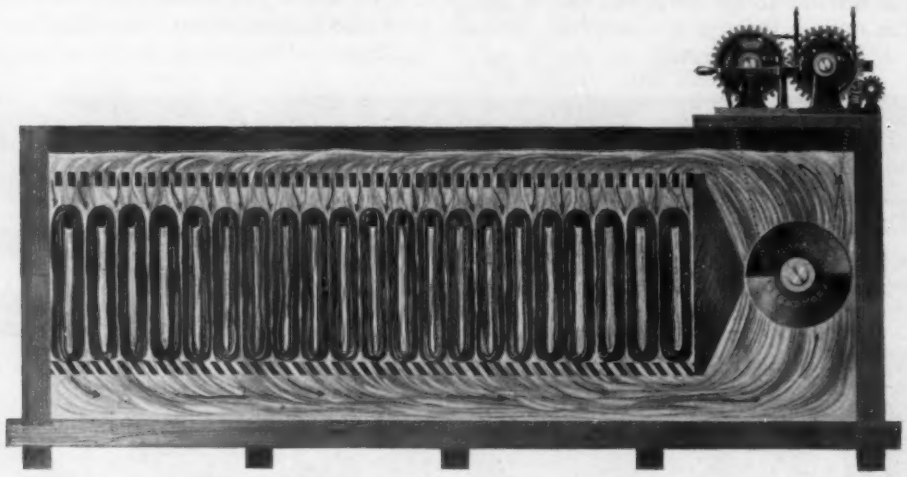


FIG. 2.

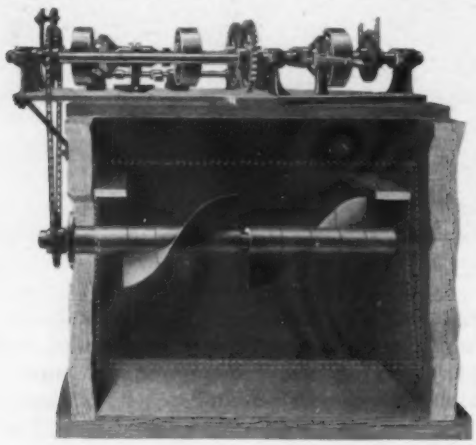


FIG 3

THE PERMANENT FIREPROOFING OF COTTON FABRICS

By Dr. William H. Perkin, Manchester, Eng.
Before the International Congress of Applied Industry.

(Continued from November.)

It was soon found, however, that the material thus treated had two serious drawbacks: it had a tendency to go damp, and an unpleasant smell of acetic acid remained even though the material had been steamed and washed, after the fireproofing process, before being sent out. And apart from these two faults, the fireproofing was still not sufficiently permanent and the cost of the process was too great for it to be considered a satisfactory one.

A further series of careful comparative tests seemed to indicate that the undoubted advance which had been made was mainly due to the use of the stannate and it was

therefore decided to carry out a series of experiments using salts of tin exclusively.

The fabric after being treated with sodium stannate as before, was, in the earlier of these experiments, passed through a fixing bath containing stannous chloride. A very permanent fireproofing was again obtained but the stannous chloride being a reducing agent, tended to destroy or affect the colors of the material and the process would, therefore, be generally applicable only to white cloth. In order to get over this difficulty stanic chloride was employed, instead of the stannous salt as the fixing agent, and to avoid any tendering of the material care was taken that the stannic chloride solution should be of such a strength that a little stannate was left unchanged in the material.

An excellent fireproofing was again obtained, for not only did the material show very little tendency to inflame, after it had been washed several times with soap and water, but it had also in such other respects as appearance and feel almost ideal properties, the only objectionable feature being a slight tendency to dust on rubbing and shaking. Now in this particular experiment, in which sodium stannate and stannic chloride had been employed together, the substance which must have been produced in the fiber, and to which the fireproofing must therefore have been due, is stannic oxide and it seemed clear that this oxide or its hydrate must have some remarkable power of combining with, or attaching itself to, the fiber which enables it to resist removal by washing and rubbing.

But this process still left something to be desired on the score of economy. A certain amount of the tin was undoubtedly wasted, for, in addition to that lost through a portion of the stannate being left unfixed, it was noticed that a considerable amount of the tin oxide which was formed by the action of the alkali of the stannate on the stannic chloride, was not permanently fixed in the fibers of the material, and was therefore removed during the subsequent washing. Tin is so expensive that, in a process to be commercially successful, this loss must obviously be avoided.

There are many ways in which stannic oxide may be precipitated from sodium stannate and one of these, commonly used in ordinary analytical chemistry, consists in adding certain soluble salts such as sodium sulphate or ammonium nitrate to the solution of the stannate, when the whole of the tin is precipitated as oxide or hydrate. In order to find out whether some process of this kind would precipitate this oxide in such a condition that it would remain permanently fixed in the fiber, a number of pieces of flannelette were soaked in sodium stanate and, after thoroughly drying, separately passed through various solutions containing sodium or ammonium salts at the ordinary temperature and at temperatures up to the boiling point. Although, as was to be expected, the results were not uniformly good, a certain degree of permanent fireproofing was always achieved and consequently the matter was systematically followed up, with the result that a process was gradually evolved which yielded material possessing quite remarkable properties. The process is briefly this:

The flannelette (or other material) is run through a solution of sodium stannate of approximately 45° Tw. in such a manner that it becomes thoroughly impregnated. It is then squeezed to remove the excess of the solution, passed over heated copper drums in order to thoroughly dry it, after which it is run through a solution of ammonium sulphate of about 15° Tw. and again squeezed and dried.

Apart from the precipitated stannic oxide, the material now contains sodium sulphate and this is removed by passage through water; the material is then dried and subjected to the ordinary processes of finishing. A long series of trials, carried out under the most stringent conditions, have conclusively proved that material, subjected to this process is permanently fireproofed. No amount of washing with hot soap and water will remove the fireproofing agent, or in other words, the property of resisting flame lasts so long as the material itself lasts. I will demonstrate this by exhibiting four different specimens: (i) material as it leaves

the process and before washing; (ii) material which has been washed ten times by hand; (iii) material washed twenty times in a machine in a laundry and (iv) a portion of a garment which has been in actual use for two years, washed every week and is, as you see, in rags. This extraordinary property of resisting soap and water seems to me to indicate that the oxide of tin is not present merely as an insoluble precipitate in the cloth but must have entered into some actual combination with the fiber, yielding a compound which is not broken down by the action of the weak alkali of the soap.

A matter of hardly less importance from the practical point of view is that the material is not only permanently fireproofed by the process I have just described, it also retains and acquires properties which make it as perfect a material in all other respects as could be desired. In the first place the treatment has no effect on the delicate colors which are now so generally employed in connection with the manufacture of flannelette and other cotton goods and very careful experiments have demonstrated the fact that the insoluble tin compound in the fiber has not the slightest deleterious action on the most delicate skin. In addition, the presence of the tin compound in the pores gives the cloth a softer and fuller feel than that of the original flannelette and what perhaps is the most unexpected result is the fact that the material is considerably strengthened by the process.

A series of tests made by the Manchester Chamber of Commerce proved that the tensile strength of flannelette is increased nearly 20 per cent. as the result of the introduction of the tin compound into the fiber. Further and very exhaustive tests made at the Municipal School of Technology, Manchester, on a machine specially designed for testing the wearing properties of fabrics, showed an even greater gain in durability in the case of the fireproofed flannelette. These separate and independent tests conclusively showed that the increase in strength and durability was approximately equal to the cost of the fireproofing treatment so that garments made from the permanently fireproofed flannelette are as a matter of fact no dearer than those made from ordinary flannelette and are at the same time as safe as if made from flannel.

(To be continued)

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year

Recipe No. 177

BROWN ON WOOLEN PIECE GOODS

Alizarine Brown B Conc. on 100 lbs. woolen piece goods. Prepare the dye bath with

4 lbs. Alizarine Brown B Conc.
(American Dyewood Co., 80 Maiden Lane, N. Y.
10 lbs. Glauber's Salt.
10 lbs. Acetic Acid.

Enter goods at 120°, bring to a boil in 20 minutes. Boil 1/2 hour and add 3 lbs. Oil of Vitriol, boil 1/2 hour longer and add 2 lbs. Bichromate of Potash. Boil 1/2 to 3/4 hour, or to shade. Rinse.

Alizarine Brown B. Conc. possesses excellent dyeing qualities and is recommended for its exceptional fastness to light and fulling.

Recipe No. 178

BLUE ON WOOLEN PIECE GOODS

Alizarine Cyanine G on 100 lbs. woolen piece goods. Prepare the dye bath with

4 lbs. Alizarine Cyanine G.
(American Dyewood Co., 80 Maiden Lane, N. Y.)
10 lbs. Glauber's Salt.
10 lbs. Acetic Acid.

Enter goods at 120°, bring to a boil in 20 minutes. Boil 1/2 hour and add 3 lbs. Oil of Vitriol. Boil 1/2 hour longer and add 2 lbs. Bichromate of Potash. Boil 1/2 to 3/4 hour, or to shade. Rinse.

Alizarine Cyanine G is noted for its level dyeing properties and for its good fastness to light and fulling.

Recipe No. 179

RED ON WORSTED YARN

Anthranol Rubinol on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Anthranol Rubinol.
(F. E. Atteaux & Co., 174 Purchase St., Boston, Mass.)
20 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter yarn at 120° F., raise to a boil and dye at a boil for one hour.

Anthranol Rubinol has found extensive use by woolen and worsted manufacturers for shading purposes, particularly with navy blues. It dyes extremely level and possesses excellent fastness to light and other requirements. It may also be dyed by the chromate process.

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Recipe No. 180

BLUE ON WORSTED YARN

Anthracyl Chrome Blue W D on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Anthracyl Chrome Blue W D.
(F. E. Atteaux & Co., 174 Purchase St., Boston, Mass.)
10 lbs. Acetic Acid.

Enter at 120° F., bring to boil and dye at a boil for one hour. Then add

10 lbs. Acetic Acid

and boil 1/2 hour longer.

Rinse and then afterchrome at a boil in a separate bath made up with

2 lbs. Potassium Bichromate.
5 lbs. Acetic Acid

for 3/4 of an hour.

Anthracyl Chrome Blue W D can also be dyed on a chrome mordant, and will leave silk effects untouched when dyed in this manner. It gives an excellent shade of blue and will be found a valuable color.

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Recipe No. 181

VIOLET ON WORSTED YARN

Acid Violet C 6 B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Acid Violet C 6 B.
(Badische Co., 86 Federal St., Boston, Mass.)
20 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour. Acid Violet C 6 B possesses very good fastness to milling.

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Recipe No. 182

OLIVE DRAB ON COTTON YARN

Sulphur Olive 3 B on 100 lbs. cotton yarn. Prepare the dye bath with

12 lbs. Sulphur Olive 3 B.
(Berlin Aniline Works, 213 Water St., New York.)
18 lbs. Sodium Sulphide (Conc.)
5 lbs. Soda Ash.
50 lbs. Glauber's Salt.

Enter at 180° F. and dye at a temperature just below the boil for one hour.

Sulphur Olive 3 B possesses good fastness to light, washing, rubbing, acids and alkalies.

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Recipe No. 183

DRAB ON COTTON YARN

Chlorazol Drab R H on 100 lbs. cotton yarn. Prepare the dye bath bath with

3 lbs. Chlorazol Drab R H.
(Read Holliday & Sons, 11 Gold St., New York.)
20 lbs. Common Salt.

Dye in the usual manner.

Chlorazol Drab R H possesses excellent fastness to washing and milling. It is ideal as a "drabbing" agent.

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Recipe No. 184

BROWNISH RED ON WORSTED YARN

Fast Chrome Brown 3 R on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Fast Chrome Brown 3 R.
(C. Bischoff & Co., 451 Washington St., New York.)
10 lbs. Glauber's Salt.
10 lbs. Acetic Acid.

Enter yarn at 100° F., bring slowly to a boil and dye at a boil for 3/4 hour, then add

2 lbs. Formic Acid

and dye 15 minutes longer, or until the bath is exhausted. Then add

2 lbs. Potassium Bichromate

and aftertreat at a boil for 3/4 hour.

Fast Chrome Brown 3 R possesses excellent fastness to light and fulling.

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Recipe No. 185

BROWN ON WORSTED YARN

Fast Chrome Brown D on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Fast Chrome Brown D.
(C. Bischoff & Co., 451 Washington St., New York.)
10 lbs. Acetic Acid.
10 lbs. Glauber's Salt.

Enter yarn at 100° F., bring slowly to a boil and dye at a boil for 3/4 of an hour. Then add

2 lbs. Formic Acid

and dye 15 minutes longer, or until the bath is exhausted. Then add

2 lbs. Potassium Bichromate

and aftertreat at a boil for 3/4 hour.

Fast Chrome Brown D possesses excellent fastness to light and fulling.

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Recipe No. 186

BROWN ON COTTON YARN

Thio Indigo Brown G Paste on 100 lbs. cotton yarn. Prepare the dye bath with

25 lbs. Thio Indigo Brown G Paste.
(Kalle & Co., 530 Canal St., New York.)
5 lbs. Caustic Soda.
4 lbs. Hydrosulphite (Conc. Powder).

The dyestuff is reduced at 140° F. and the dyeing carried out at a temperature of from 120° to 140° F. After dyeing wash and finish in a boiling soap bath.

Thio Indigo Brown G Paste possesses good fastness to light, washing and rubbing.

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Recipe No. 187

BROWN ON WORSTED YARN

Guinea Brown 2 R on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Guinea Brown 2 R.
(Berlin Aniline Works, 213 Water St., New York.)
15 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at 160° F. and dye at a boil for one hour.

Guinea Brown 2 R possesses good fastness in most respects.

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Recipe No. 188

DRAB ON COTTON YARN

Chlorazol Drab R H on 100 lbs. cotton yarn. Prepare the dye bath with

1 lb. Chlorazol Drab R H.
(Read Holliday & Sons, 11 Gold St., New York.)
5 lbs. Common Salt.

Prepare the dye bath in the usual way.

Chlorazol Drab R H possesses excellent fastness to light and milling. It is also used to advantage as a "drabbing" agent.

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Recipe No. 189

GREEN ON COTTON YARN

Thio Indigo Green G (Paste) on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Thio Indigo Green G (Paste).
(Kalle & Co., 530 Canal St., New York.)
4 lbs. Caustic Soda.
4 lbs. Hydrosulphite (Conc. Powder).

The dyestuff is reduced at 140° F., complete reduction being indicated by a golden brown color of the liquor. Dyeing is carried out at a temperature ranging from 100° to 110° F. Finish in a boiling soap bath.

Thio Indigo Green G Paste gives dyeings possessing good fastness to light, washing and rubbing.

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Recipe No. 190

BROWN ON COTTON YARN

Benzo Fast Brown R L on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Benzo Fast Brown R L.
(Farbenfabriken Co., 117 Hudson St., New York.)
40 lbs. Glauber's Salt.
2 lbs. Soda Ash.

Dye at a boil for one hour.

Benzo Fast Brown R L possesses very good fastness to light, and is a level dyeing color. It also possesses good fastness to alkali, acid, rubbing and stoving.

—÷—

Recipe No. 191

YELLOW OLIVE ON COTTON YARN

Immedial Yellow Olive G B on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Immedial Yellow Olive G B.
(Cassella Color Co., 182 Front St., New York.)
15 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
50 lbs. Glauber's Salt.

Boil up the bath, skim off the top. Enter yarn and dve for one hour at a temperature just below the boil.

Immedial Yellow Olive G B possesses excellent fastness.

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Recipe No. 192.

VIOLET ON WORSTED YARN

Acid Violet C 10 B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Acid Violet C 10 B.
(Badische Co., 86 Federal St., Boston, Mass.)
20 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter yarn at 140° F., bring slowly to a boil and dye at a boil for one hour.

Acid Violet C 10 B possesses very good fastness to milling.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

REWARD: As this Department is intended to be a complete record from month to month, we will pay a reward of $2.00 to the person who shall first notify us of any new textile machine, textile device or process, which has been put upon the American market within the two months preceding this issue, and which has not been reported or advertised in the TEXTILE WORLD RECORD. This does not mean an invention which has merely been patented, but something actually ready for sale. A brief description of it and the name of the concern making it should accompany the claim.

Spinning Roll. The Metallic Drawing Roll Co., Indian Orchard, Mass. An improved spinning roll known as the Richard-Hinds roll, which is described in another part of this issue.

Floor Lock for Portable Elevators. The New York Revolving Portable Elevator Co., 344 Garfield Ave., Jersey City, N. J., have adopted an improved floor lock for their revolvator. A description appears in this issue.

Shoddy Picker. Diamond Textile Machine Works, Philadelphia, Pa. An improved lumper attachment for the Diamond shoddy picker. A description appears in this issue.

A Fabric Shrinking Machine. The Tolhurst Machine Works, Troy, N. Y. An improved machine for shrinking textile fabrics. A description appears in this issue.

Shuttle Guard. Heidel & Mohn, 20 Fourth Ave., Bethlehem, Pa. An improved shuttle guard especially adapted for silk and cotton looms. A description appears in another part of this issue.

Necktie Knitting Machine. New Branson Knitting Machine Co., East Thompson St., Philadelphia, Pa., are putting on the market an improved necktie knitting machine which is suited for a wide variety of styles. The machine is described in this issue.

Finger Threading Shuttle. W. H. Horrocks & Co., Manchester, Eng. A shuttle which can be threaded with the fingers, thus dispensing with the objectionable "shuttle kissing."

Box Loom. Georg Schwabe, Bielitz, Austria. An improved method of moving loom shuttle boxes.

Finishing Machinery. H. Pervilhac & Co., Villeurbanne, France. A machine for imparting a sponge-like appearance to the face of textile fabrics.

Automatic Loom. The Spinnerei & Weberei Act.-Ges., Steinen, Germany. An automatic device for supplying filling to bobbin changing looms.

Open-work Knitting Machine. Ernst Boessneck, Chemnitz, Germany. A jacquard attachment for cotton knitting machines, specially adapted for open-work fabrics.

Drying and Carbonizing Machine. Fielden & Co., Rochdale, England, have put on the market an improved machine for drying and carbonizing wool. It operates on the continuous plan.

Moistening Yarn. William T. Smith, Bolton, England. An apparatus attached to a ring spinning frame for moistening roving before it passes to the spinning rolls.

Sectional Warping Machine. Brown, Tran & Co., Carlisle, England. The sections are separated by thin metal discs which slide on a central shaft and rods, enabling them to be adjusted to any section width required.

Scouring Machine. Fr. Gebauer, Berlin, Germany. A machine for scouring and rinsing mercerized goods to remove the alkali. A jet of the scouring liquor is forced on the goods by compressed air.

THE SUTER REEDING MACHINE

The reeding machine shown in the accompanying illustration, Fig. 1, is sold by Alfred Suter, Fifth Ave. Bldg., New York, and is in

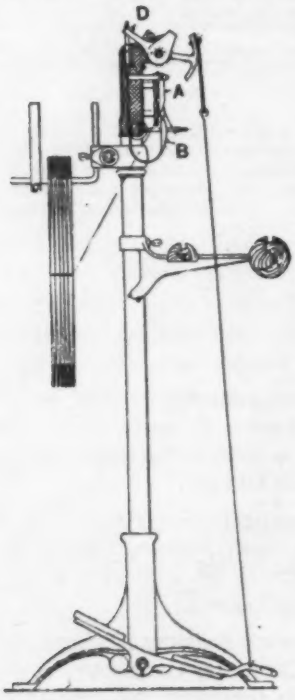


FIG. 1.

successful operation in a number of cotton and silk mills in this country. The construc-

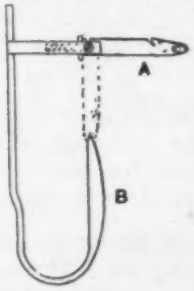


FIG. 2.

FIG 3.

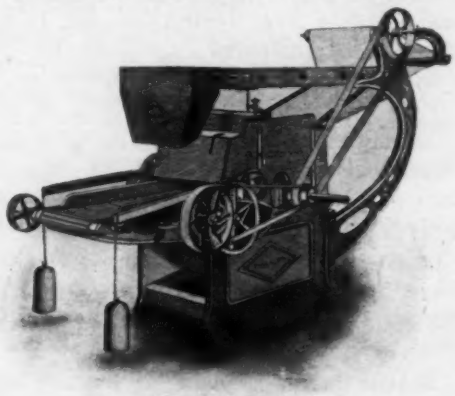
tion and operation of the machine are so simple that an experienced hand soon learns to operate it at full capacity and can set the mechanism to suit different reeds. The speed averages fifty dents per minute with as many ends inserted as is required. Figs. 2 and 3 show parts of the reeding mechanism on an enlarged scale. The blade, A, and guide, B, are set so that the space, C, is equal to the thickness of the reed wire. The machine can be adjusted in a few minutes for use on a loom of any width. The advantages of this machine are summed up as follows:

1. A much larger production.
2. Increased wages for the operator.
3. Reduction of cost for reeding.
4. Perfect reeding.

Manufacturers can see the machine in operation and obtain further information by applying to Mr. Suter.

THE DIAMOND SHODDY PICKER

The illustration shows a new shoddy picker built by the Diamond Textile Machine Works, Philadelphia. It is provided with a lumper attachment by which the



THE DIAMOND SHODDY PICKER

lumps are thrown on an apron which transfers them to a second apron, that drops them finally on the feed table where they are delivered with the rags to the machine to be broken up. The lumper is placed above the cover and is, consequently, entirely out of the way of the man running the machine. The cover can be removed by simply lifting it from the frame, it being unnecessary to remove nuts and bolts. The lumps are carried back to the feed table as fast as they are made, thus avoiding running a lot of the lumps by themselves after the batch is fin-

ished. The builders of the Diamond machine are so confident of its efficiency that they are prepared to install the picker on thirty days' trial. Further information can be obtained on application.

THE "CLIPPER" BELT LACER

This tool for lacing belts is manufactured by the Clipper Belt Lacer Company, Grand Rapids, Mich. This method of lacing belts has been very successful for belts running at high speed, for the joint, being finished flush with the surface of the belt, prevents any jump or vibration, and as it is very flexible,

FIG. 1.

FIG. 2.

runs over the pulleys as smoothly as an endless belt. It also is very light and short, so that the liability of slipping is prevented. The joint is made by pressing a row of hooks into each end of the belt, as shown in Fig. 1, the ends brought together and the lacing completed by inserting a rawhide pin through the two sets of projecting hooks, Fig. 2. The hooks are set in cards, Fig. 3, wide enough to fill the machine. If it is desired to lace a belt narrower than the machine, a pair of scissors (furnished with each tool) is used to cut the paper card the right width. This is then inserted into the machine and the pin put in which holds the hooks in place, the paper taken out, and the machine is ready for operation.

Fig. 4 illustrates the method of operating the machine. The ratchet is hinged on the base of the machine so it can be laid back, allowing the center and side heads, which hold the clinch bar, to be thrown back out of the way, giving free access to the lacer to insert the hooks. The lining bar which meshes into the lacer and engages the hooks, is handled by the plungers in the side heads, backed up by springs so that when the side and center heads are brought forward, the plungers engage the lining bar, thus keeping the hooks in alignment during the operation. The center head is brought forward until the clinching bar comes in contact with the hooks, then the ratchet is brought forward into position and the paul engages same. Then the belt, which is held in place by the bracket, is inserted between the hooks and the levers are pressed down. As the levers are raised up, the pawl takes a step up the ratchet, and so on until the operation is completed and the hooks are pressed in flush with the surface of the belt, the whole operation taking less than two minutes. The other end of belt is finished in the same way, and the rawhide pin inserted to connect them.

The "Clipper" Belt Lacer weighs only 19 pounds, and is easily carried to the belt and operated in any position, thus saving a great

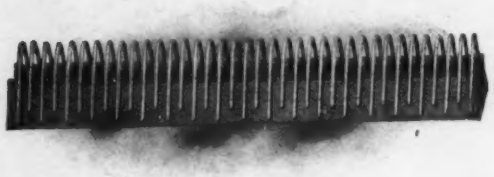


FIG. 3.

deal of time. The advantages of this method of lacing are summarized as follows:

1. Anyone of ordinary ability can make a perfect joint.
2. Both sides of the belt are alike—perfectly smooth.
3. The hooks, having a long and short side, zig zag the lace, thus equalizing the strain.
4. The joint is flexible, with no chance of crystalization if hooks are properly driven or pressed into the belt flush with its surface.
5. The smoothness of the joint eliminates all vibration.
6. It is economical. No short ends of belt need be wasted.
7. Any width or thickness or belt may be laced with the same tool.
8. It holds perfectly on all makes of belting.

9. It is adapted for either high or low speed.

10. It is portable and easily taken to the belt, making it unnecessary to take the belt off the shaft or pulleys.

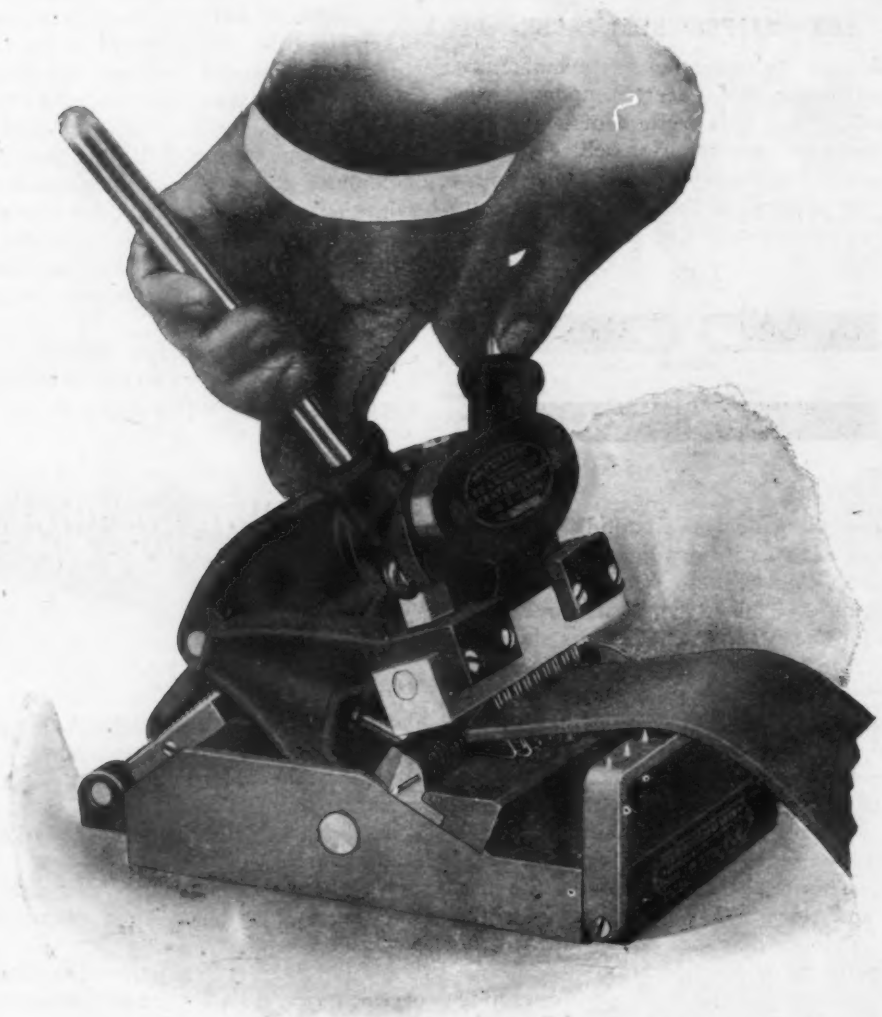


FIG. 4.

11. It will do all this at a very low cost.

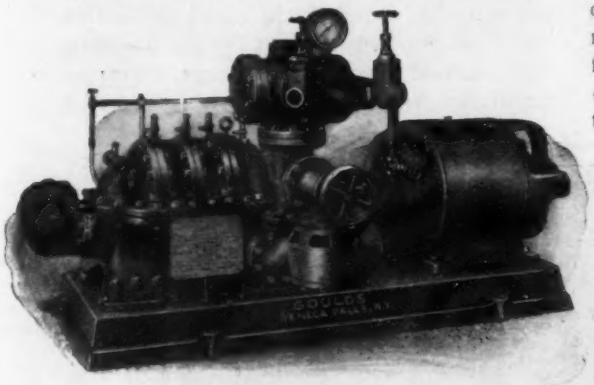
12. The original price of either style of tool is low. Among the many users of the "Clipper" Belt Lacer are the following: Bissell Carpet Sweeper Co., Grand Rapids, Mich., 8 machines; Smith & Wesson Co., Springfield, Mass., about 16 machines; Timken Roller Bearing Co., Canton, O., about 12 machines; R. J. Reynolds Tobacco Co., Winston-Salem, N. C., about 4 machines; Berkey & Gay Furniture Co., Grand Rapids, Mich.; Westinghouse Air Brake Co., Pittsburgh, Pa., 2 machines; Joseph Fahys & Co., Sag Harbor, N. Y.; White Sewing Machine Co., Cleveland, O.

From a very small business started in one room in 1907, it has grown to a point where

more than 12,000 lacers up to the present time, have been sold. This the manufacturers believe is sufficient evidence of the popularity and advantage of the output.

NEW CENTRIFUGAL FIRE PUMP

The accompanying illustration shows a new design of Centrifugal fire pump just developed by The Goulds Mfg. Co., Seneca Falls, N. Y. The outfit is furnished com-



A CENTRIFUGAL FIRE PUMP

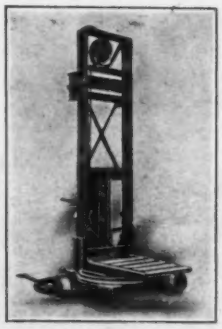
plete with pump, electric motor (a. c. or d. c.) or steam turbine, bed plate and all fittings required by the fire insurance companies, and it has been approved by the Association of Mutual Factory Fire Insurance Companies.

Four sizes are furnished, with capacities of 500, 750, 1,000 and 1,500 gallons per minute—being sufficient for 2, 3, 4 and 6 effective fire streams respectively. The design of this equipment has been developed to obtain ruggedness and strength, liberal size water ways and easily accessible parts, with simplicity and reliability. All working parts are made of bronze to prevent any corrosive action from the water.

The outfit illustrated is the 500 gallon equipment for two effective streams. With 250 ft. leads of smooth hose and 1 1/8 inch nozzles, the pressure at the nozzle is 50 pounds per square inch. This will produce an effective stream in a modern wind at a vertical height of 70 feet and at a horizontal distance of 63 feet. The motor with this outfit runs at 1,700 r. p. m. and has an output of 50 h. p. The overall dimensions of the complete outfit are: Length 9 feet, 7 inches; width 6 feet, 3 inches; height 4 feet, 9 inches.

A NEW FLOOR LOCK FOR THE REVOLVATOR

The New York Revolving Portable Elevator Company, 344 Garfield Ave., Jersey City, N. J., is now supplying all the revolvators that it manufactures, with a new type of floor-lock which is a distinct improvement over any other method so far devised for making a portable tiering machine rigid on the floor. As shown by the illustration, this floor-lock is a semi-circular piece of



A FLOOR LOCK FOR THE REVOLVATOR

steel, having at both ends lugs which form two feet for the machine to rest on when it is in use.

When the revolvator is moved about in the warehouse, this semi-circular bar is raised, allowing the weight of the machine to rest on the three wheels, and the two feet are well above the floor. There is thus absolutely no danger of these feet coming into contact with the floor, no matter how uneven it is when the machine is being pulled around on the three wheels.

When the machine has been located in the right place, the semi-circular steel bar is dropped and the operator pushes it down snugly with his foot. This lifts the front of the machine slightly, so that the swivel wheel is now clear of the floor, and the revolvator is supported on the two feet of the floor-lock and the two rear wheels. This gives an absolutely rigid foundation on the floor, and the four widely separated points

of support give a large base area, so that the center of gravity of the load is always within the base area.

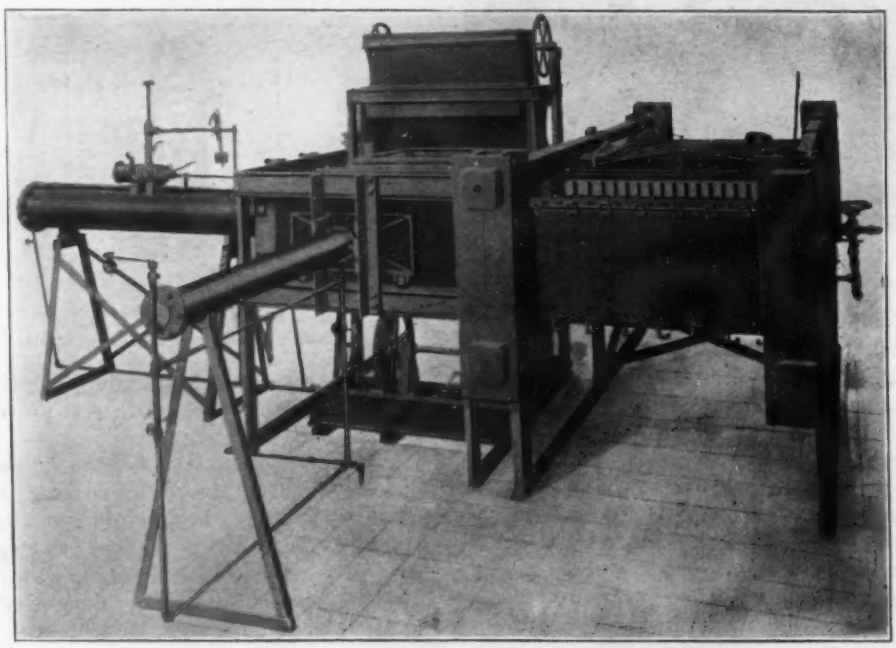
When loads of excessive bulk are to be handled, the revolvator is supplied with a longer rear axle and with a greater distance between the feet of the floor-lock, so that an exceptionally wide base area can be provided, making it absolutely impossible for the machine to tip over. When it is desired to release the floor lock, the drawing tongue of the revolvator is merely raised; this pulls the floor lock clear of the floor. This type of floor-lock is now standard with the various styles of the revolvator, such as the electric, hydraulic and pneumatic. As it gives such a rigid support on the floor, it is also used on the non-revolving type of tiering machine, of which this company sells a few. Owing, however, to the many superior advantages of the revolving base, all demand for the non-revolving type has practically ceased.

This new floor-lock does not interfere in the least with the revolving feature, for the lower base always remains stationary on the floor and only the upper structure revolves.

Further information on this improvement and data for attaching it to old styles of revolvators can be had by addressing the N. Y. Revolving Portable Elevator Co., Jersey City, N. J.

AN IMPROVED GIN COMPRESS

The accompanying illustration shows a gin compress which packs and bales cotton ready for shipment without further handling. This method saves time, storage, transportation, freights, sampling, etc. A density of

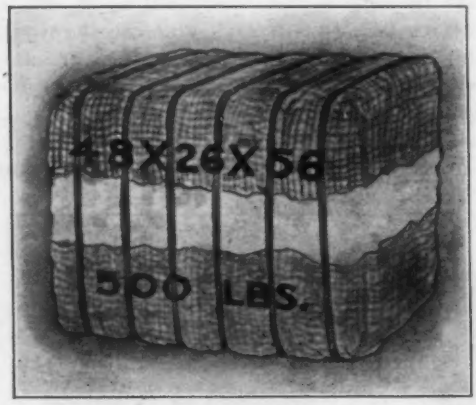


A GIN COMPRESS FOR PACKING AND BALING COTTON

thirty pounds per cubic foot is obtained and a square, well covered bale is obtained as against twenty-two pounds per cubic foot and a loosely covered bale by all other compresses. The press will handle the cotton from any number of gins up to six. The operation is a continuous one for ginning, packing and pressing.

The cotton is received from the gins into a hopper from which it is automatically and

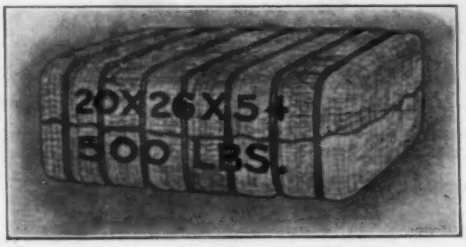
systematically fed into a packer box. Here it is packed under steam compression until five hundred pounds of cotton has been received, and then instantly transferred to the press where it is quickly compressed into a bale under hydraulic pressure. The opera-



PRESENT STANDARD PRESSED BALE. DENSITY 12 POUNDS PER CUBIC FOOT

tion is a mechanical one from the time the cotton is received in the packer hopper until the bale is dropped to the floor, with the exception of fastening the ties, which is done by hand in the usual manner.

The systematic and uniform method of



FARMERS COMPRESS BALE. 30 POUNDS PER CUBIC FOOT

packing the cotton before it is transferred to the press rids the cotton of all air pockets, and insures a uniform bale in size and shape. Both ends of the bale are open during the process, allowing the air to be expelled, so that all danger of bursting the ties while in storage or transit is removed This is but one of the numerous styles of presses manufactured by The Hydraulic Press Mfg. Co., of Mt. Gilead, Ohio. This company make a specialty of hydraulic presses and pumps for high pressure purposes. They also design presses for special requirements.

SAVING ARTIFICIAL LIGHT

Textile mill men realize the necessity of having the windows cleaned oftener in order to procure more natural daylight, and use less artificial light, which is not as satisfactory and more expensive. The main trouble in keeping windows clean is the

A PLATFORM FOR WINDOW CLEANERS

hazardous part of the job. Men have to risk their life to go outside of large buildings and clean the windows without some safety device to protect them from falling. The Boston Iron Works of 32 Oliver St., Boston, Mass., have solved the window cleaning problem, and are introducing the safety window cleaning platform shown in the illustration.

The platform is made mostly of steel with iron railings on three sides, so that the window cleaner is absolutely safe while working on it, and has the free use of both his hands and body. The platform has an ingenious arrangement by which it locks to the window sills like a vise, and cannot be removed before the window cleaner gets inside of the buildings and removes it.

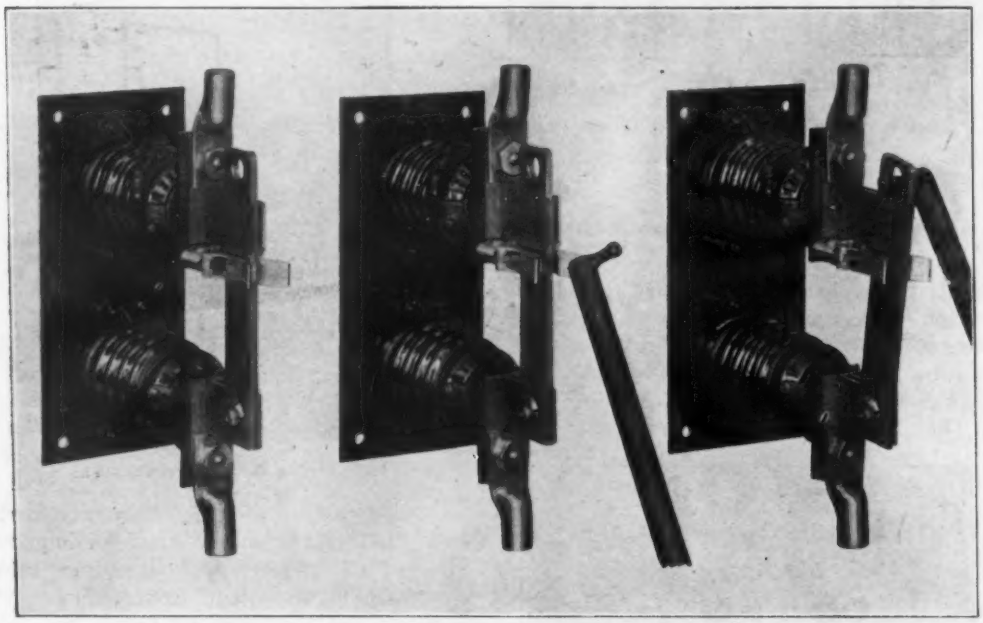
The apparatus weighs about 26 pounds and can be secured to or released from any

window in less than a minute. Many mill men deem it a good investment to buy a platform for their window cleaners, and have the windows cleaned oftener, thus saving on their electric light, besides not having to run the risk of their window cleaners getting injured.

SAFEGUARDING CONTINUITY OF ELECTRIC POWER SERVICE

To realize how dependent the people are upon the electric current, it is only necessary to be at the power house end of the telephone when the power is off and an exasperated public has waited for what they consider a reasonable length of time for its restoration. A shut down of the machinery may mean not only serious delay in finishing work, but also the idleness of many high priced workmen. This condition makes it imperative that every device be employed which makes for continuity of service.

The illustration shows a locking device manufactured by the General Electric Co., Schenectady, N. Y., that effectually prevents the blade of a disconnecting switch from opening except under the direction of the operator. Instances are on record where the blade of a disconnecting switch not protected by this device has been thrown open or partly open by magnetic repulsion and destroyed when a short circuit has occurred on the line. The safety catch or locking device is a unit in itself and can be applied by anyone to any GE type L, form G-6 switch merely by clamping it to a support placed between the clip block and the insulator cap. It is of rugged design and is operated with a switch book This locking



TYPE L FORM G 6 DISCONNECTING SWITCH WITH LOCKING DEVICE

device consists essentially of two brass bell cranks hinged together at the ends of the two shorter arms and held closed by compression springs. The projections or jaws in the outer ends of the two longer arms close in front of the blade, thus preventing the latter from coming out of the clips. Each bell crank is provided with a dog which moves in a slot in the bell crank's elbow, the dog being hinged at this point. Two compression springs, one pressing outwardly from the switch base against the elbow of each crank and also against the dog, keep the bell cranks closed and the

dogs pressed against the back of the switch blade.

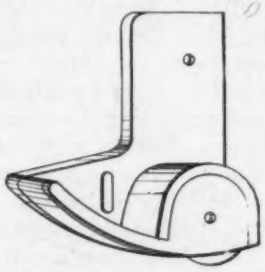
To open the switch, the outer ends of the bell cranks are pressed back from the blade allowing the dogs to come forward so as to rest upon the sides of the blade, in which position they hold the jaws in front of the blade apart allowing the switch to be opened. Withdrawing the blade of the switch from between the dogs causes the jaws to close automatically against the sides of the blade and to snap shut as soon as the blade is completely withdrawn.

As the outer edges of the jaws are beveled the switch blade can be readily pressed back in the clips into the closed position, when the jaws close in front of the blade locking the latter in the closed position. The locking of the switch is automatic and thus independent of the operator.

This device is made in sizes to fit 300, 600, 800 and 1,200 ampere switches as standard and can be furnished for a switch of any capacity. It has been on the market for a comparatively short time, yet it is being used by practically all the important electrical operating companies in the United States.

THE HEIDEL SHUTTLE GUARD

The device shown in the accompanying illustration is attached to the shuttle box to prevent the shuttles from being split or otherwise damaged by striking the sharp ends of the boxes. It is intended particularly for silk and cotton looms, although it can be used on woolen looms. It is patented

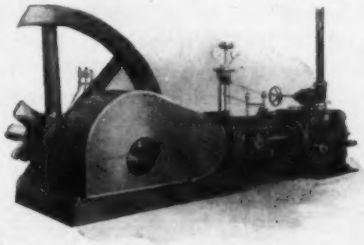


THE HEIDEL SHUTTLE GUARD

and sold by Heidel & Mohn, 20 Fourth Ave., Bethlehem, Pa., who state that they will send a pair of the guards to weaving mills desiring to make a test of the device.

THE VILTER HIGH SPEED CORLISS ENGINE

Since the time when Geo. H. Corliss patented a steam engine valve motion which was practically automatic and accomplished the complete and quick closing of the semi-rotative steam valves at precisely the right moment, the name Corliss engine has been



THE VILTER CORLISS ENGINE

synonymous with economy and sounds familiar even to those who have no particular interest in engines or engineering. The simple trip device which engaged and opened the steam valves that released the valves at the right instant and permitted them to be closed by the action of vacuum dashpots, or by means entirely independent of the engine's motion, was the basis of the invention. Steam was cut off with knifelike precision when enough had entered the cylinder, and cutting off steam meant cutting down fuel consumption. It was, therefore, but natural that upon the expiration of the Corliss patents hundreds of engine builders should abandon their own particular style of machines and devote themselves entirely to the manufacture and sale of the more efficient Corliss type. Few among the large number of builders of Corliss engines have materially departed from early types, especially in the construction of their steam valves and releasing gears. Many have built heavier frames to withstand the greater stresses due to increasing steam pressures, and some have compounded the cylinders in order to get a larger benefit from steam expansion, but in the main the valve gears have remained as they were previously built.

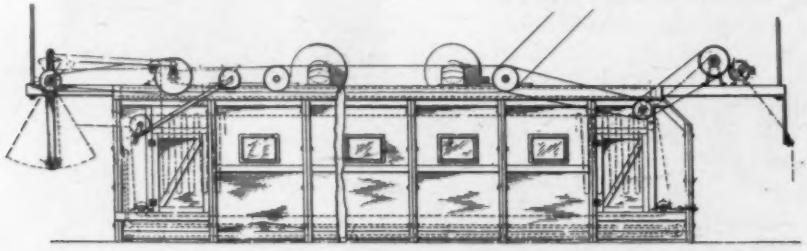
Prominent among the few to recognize the advantages and economies to be derived through higher piston speed than were at

tainable with the older form of Corliss valve gear, are The Vilter Mfg. Co., 1116 Clinton St., Milwaukee, Wis. They have so perfected their Corliss valves and releasing gear that practically double the former Corliss engine speeds are now common practice. By employing double ported valves, steam is more quickly admitted to the cylinders which makes it possible to reduce largely the length of the arc or the number of degrees of travel of the reciprocating parts which actuate the valves. A much higher rotative speed is permissible for the same number of degrees of valve gear travel, without sacrificing the advantages of the Corliss principle of almost instantaneous steam cut-off and without increasing the wear of the mechanism. In fact the engine runs more smoothly than the older types, notwithstanding the largely increased speed. As the horse power with any given mean effective pressure increases proportionately with the speed, the advantage of the high speed engine is apparent; a smaller engine may be purchased for a given horse power and at a material saving in first cost and a saving of valuable floor space. A number of Vilter high speed Corliss engines are in operation in and about Milwaukee, some delivering power through belts to line shafts, and others driving direct connected generators. These engines are built in a large number of sizes, both simple and compound, condensing and non-condensing.

The "Vilter" is well and favorably known in the textile industry, a large number of these engines having been in operation for many years in textile mills in all parts of the country. One of the recent sales was that of a 24 by 42 inch Corliss engine of the latest design to the Burson Knitting Co., Rockford, Ill.

A FABRIC SHRINKING MACHINE

This machine, built by the Tolhurst Machine Works, Troy, N. Y., is designed to shrink and finish textile fabrics in a continuous operation. Fig. 1 is a side elevation of the apparatus. Fig. 2 shows the device for feeding and looping the cloth. The web is shown running over a guide bar which serves to support the fabric. The cloth is then led between a pair of helically ribbed opener rolls for the purpose of smoothing out all parts of the fabric. The fabric passes from the opener rolls over a carrier roll, thence into the drying and shrinking room.



FABRIC SHRINKING MACHINE. FIG. 1.

FIG. 2.

The drying room is closed and is arranged to receive the air only through the intakes, and to discharge it through the ventilating pipes, whereby the circulation of the air through the fabric and throughout all parts of the drying room is controlled. This drying room is of rectangular form, and may be built of wood and lined with sheet metal. In Fig. 1 the side wall is provided with doors and windows, thus affording means of access and observation. Means are provided for carrying the fabric through the drying room with a great extent of surface exposed to the drying action of the heated air, while at the same time protecting the fabric from any excessive strain. This object is accomplished by using an intermittently moving conveyor upon which the fabric is looped. A pair of endless sprocket chains at either side of the drying room run from the place of ingress at which the fabric is taken into the drying room to the other end where the dried cloth passes out of the room. Arranged transversely between and supported by the sprocket chains are the supporting bars over which the fabric is looped. Suitable supporting and actuating means for the sprocket

chains are provided, and are shown running over four pairs of sprocket wheels. Two pairs of the wheels are near the bottom of the drying room, the whole arrangement affording an endless path for the chains, the return portion of the path being near the bottom of the drying chamber, thus leaving the room free for the traveling loops of the drying fabric.

An intermittent movement is given to the sprocket chains, and arrangement is made for regulating the tension.

THE RICHARDS-HINDS TUBE ROLL FOR SPINNING FRAMES

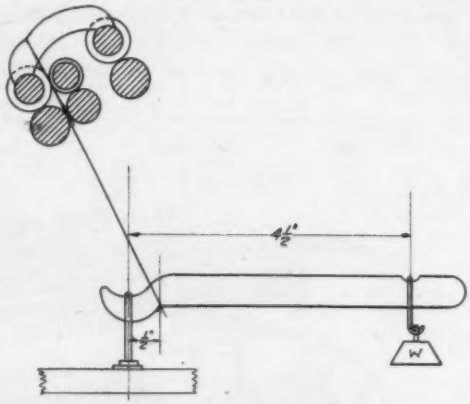
The illustration shows the Richard-Hinds tube roll for spinning frames. This roll is manufactured by the Metallic Drawing Roll Co., Indian Orchard, Mass., who claim that it is one of the most important improvements made in spinning in the last twenty-five years. The strength of yarn depends upon two principal factors; the kind of cotton, and the arrangement of the fibers among themselves.

It is a well-known fact that the closer the rolls are set in spinning the evener is the yarn. The closeness of the setting, however, has always been dependent on the length of the staple being used. In ring spinning, for instance, the rolls might be set 1/16 of an inch inside of the staple; any closer setting would result in cockled yarn due to imperfect drawing.

The Richard-Hinds roll permits of a setting well within the length of fiber being drawn and without any danger whatever of cockling the yarn, giving increased strength and better spinning—due to the fact that more of the short fibers are twisted in than would be the case with a wider setting.

Cockley yarn preventor. The claim that these rolls prevent cockley yarn is based on the result of nearly two years experiment with several thousand spindles running on 1 5/8 inch cotton with a setting of one inch from center to center on lever weighted frames. It is stated that not an ounce of cockley yarn has come through under these conditions.

Extra strength of yarn. It has been demonstrated by actual tests that yarns turned out under these rolls have an increased strength over yarns made on the ordinary roll of at least 5 per cent., due to the fact that with the closer setting the shorter fibers are kept in line and are twisted in with the



THE RICHARDS HINDS TUBE ROLL.

Showing setting of lever weighted frames running cotton of 1 5/8 inch staple. The rolls are set 1 inch from center of front roll to center of middle roll. In running these rolls no change of settings is necessary in running cotton from 1 inch to 1 5/8 inch staple on lever weighted frames.

long fibers to a greater extent than could possibly be the case with a wider setting.

Better spinning. This claim has been substantiated by actual experiment during the past two years. Previous to the introduction of this roll in one mill running fine carded yarns from 1 1/4 inch Egyptian cotton, considerable trouble was experienced in spinning 60s and 70s, and no one spinner was given more than one frame on these fine numbers. Since the introduction of the Richard-Hinds rolls the mill has been running their 70s carded from 1 1/4 inch Egyptian stock with a setting of 1 1/6 inch, as close as they can get on account of the diameter of their rolls (1 1/16 front, and 15/16 middle roll), and the work on these fine numbers is now running so well that instead of scattering the fine work throughout the room so that no spinner will have more than one frame as was formerly done, they can now put all of one spinner's frames on the fine counts. The spinners are running as many as 900 spindles each on 70s carded, showing that the use of this roll has brought about better spinning.

Less waste. With better spinning there

must of necessity be less waste made. In mills where these rolls have been applied the amount of waste has been reduced at least 25 per cent., due to the fact that on account of the better spinning fewer ends come down.

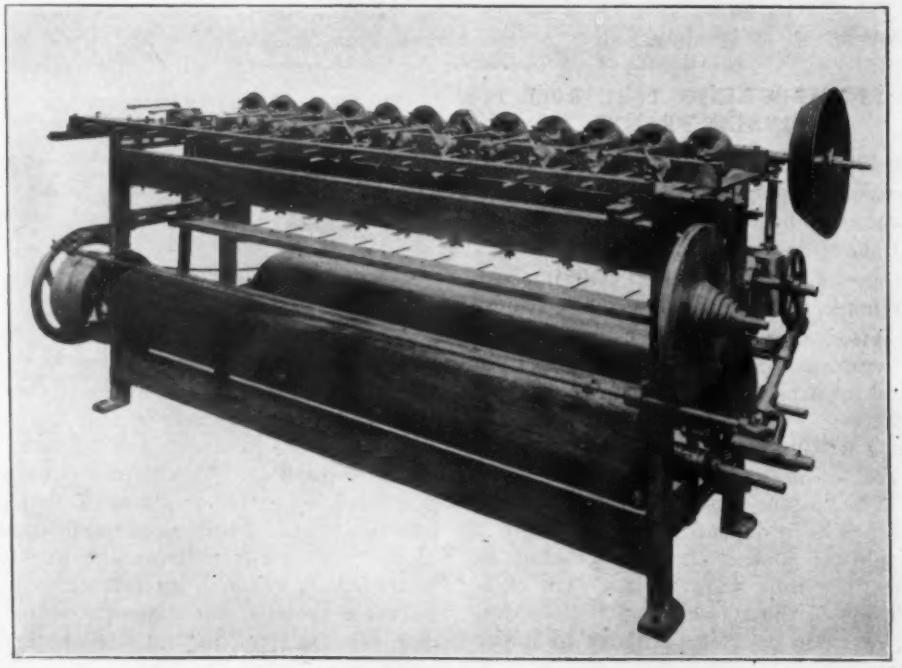
Greater production with improved product. It has been demonstrated that with this roll a larger product can be turned off, because a greater lineal speed per minute can be maintained.

Reduced cost for spinning. In mills where these rolls have been introduced to any considerable extent it has been demonstrated that on account of the better running of the work the spinners are enabled to run from 10 to 20 per cent. more spindles than was done previous to the introduction of the roll.

Less change of settings. In changing from one staple to another it will seldom be found necessary to change settings when running these rolls, thus saving considerable time.

THE MANUFACTURE OF GIMP

There is at the present time an active demand for gimp, which is a covered and twisted cord used for various novelty effects and for the wrapping of fancy boxes, the cord being of various colors and covered with tinsel. The John Eppler's Machine Works, 629 Filbert St., Philadelphia, Pa., report many inquiries for their new machine for making gimp. The illustration shows the latest model of this machine, which is adapted for making all kinds of gimp, silk covered cord and fancy frills for millinery and dress trimmings. It has twelve spindles making twelve strands of the material at one time, and is, consequently, capable of a very large production. A feed regulator enables the cord to be covered closely to produce a high grade gimp or to give a spiral effect which allows the cord to show through the covering. The Eppler machine has double heads on each spindle and a slide in front which spools the finished material.



THE EPPLER GIMP MACHINE

Personals

Thomas Hall has been appointed superintendent of the Manchester Mfg. Co., Macon, Ga., succeeding C. E. Davis. Mr. Hall was formerly employed at the Bibb Mfg. Co., Macon.

C. M. Dunn, superintendent of the Clara & Dunn Mills at Gastonia, N. C., will have charge of the new Armstrong Cotton Mill, Gastonia, also.

Ephraim Huffstickler, overseer of spinning at the Wampum Mills, Lincolnton, N. C., has resigned to accept a similar position with the Long Shoals Mill Co., Long Shoals, N. C.

J. L. Grice has accepted the position of overseer of spinning at the Shelby Cotton Mills, Shelby, N. C. He comes from Kings Mountain, N. C.

James Bagett has accepted the position of overseer of carding at the Chinnabee Mills, Talladega, Ala.

R. F. Gardner has been appointed superintendent of the Magnolia Mills, Charlotte, N. C. He comes from Kings Mountain, N. C.

John Wilkinson has accepted the position of overseer of weaving at the Wallace & Smith Blanket Mills, Laporte, Ind. He was formerly employed at Davenport, Ia.

Thomas H. Spurr, overseer of dyeing at the Cheshire Mills, Harrisville, N. H., has severed his connection with that company.

William Rutledge, overseer of weaving at the Wallace & Smith Blanket Mills, LaPorte, Ind., has severed his connection with that company.

I. W. Curtis, overseer of the carding department at the Edwards Mfg. Co., Augusta, Me., has been promoted to the position of superintendent.

William F. MacDonald has accepted the position of overseer of dressing at the Pawcatuck Woolen Mills, Westerly, R. I. He was formerly employed at the Kenyon Mills, Kenyon, R. I.

Max H. Wagner has been appointed designer for the Holden-Leonard Co., Bennington, Vt. He was formerly employed at the Smith Woolen Co., Pittsfield, Me.

T. P. Olmstead has been appointed agent of the Faulkner Mfg. Co., North Billerica, Mass. He was formerly superintendent of the Baltic Mills, Enfield, N. H.

A. W. Slocum has been appointed superintendent of the H. T. Murdock & Co., Proctorsville, Vt. He formerly held the position of agent of the Faulkner Mfg. Co., No. Billerica, Mass.

John Simson, treasurer and general manager of the Aetna Mills, Watertown, Mass., has tendered his resignation to accept the position of treasurer of the U. S. Worsted Co., Lawrence, Mass.

W. A. Booth, overseer of weaving at the Cocheco Woolen Mfg. Company, East Rochester, N. H., has resigned to accept a similar position with the Aetna Mill, Watertown, Mass.

John W. Campbell, second hand of the carding room at the No. 3 Mill of the Grant Yarn Co., Fitchburg, Mass., has resigned to accept a similar position with the Nottingham Mill, Providence, R. I.

A. H. Paul has been appointed superintendent of the Boston Mfg. Co., Waltham, Mass., to succeed L. W. Quealy. Mr. Paul was buyer for the Boston Mfg. Co. previous to accepting his new position.

Frank Casey has been appointed superintendent of the Wakefield Mills Co., Wakefield, R. I. He was formerly employed at the Somersville Mfg. Co., Somersville, Conn.

George Gregson has accepted the position of overseer of weaving at the Killingly Mfg. Co., Killingly, Conn. He was formerly employed at the Waypoyset Mfg. Co., Central Falls, R. I.

Hugh B. Fraser, overseer of finishing at the Lebanon Mill, American Woolen Co., Lebanon, N. H., has severed his connection with that company.

Howard Stevens has accepted the position of assistant designer at the Atlantic Cotton Mills, Lawrence, Mass.

John S. Hetherington, overseer of weaving at the Bound Brook Woolen Co., Bound Brook, N. J., has severed his connection with that company.

George F. Hussey, who has been overseer of dressing, spooling and twisting for the Pawcatuck Woolen Mills, Potter Hill, R. I., has resigned to accept a similar position with the Oakland Mfg. Co., Reisterstown, Md., a position he formerly held for over three years. Mr. Hussey is well known among the mills in New England and is considered an exceptionally good man in the dressing department.

Morris Gledhill, of Skowhegan, Me., has reentered the employ of the Oakland Mfg. Co., Reisterstown, Md., as manager. Mr. Gledhill formerly held this position and the mill was very prosperous under his management.

George Wilcox has been appointed overseer of carding at the Oakland Mfg. Co., Reisterstown, Md. He was formerly employed at the Beckman Co., Cleveland, O.

William Lockhart has been appointed superintendent of the Ray Mill, American Woolen Co., Franklin, Mass., to succeed Charles Elwell.

Daniel Marley has accepted the position as overseer of finishing at the Lebanon Mill, American Woolen Co., Lebanon, N. H. He was formerly employed at the Beaver Brook Mill, Collinsville, Mass.

John Parkinson, overseer of slashing and drawing-in at the Whitman Mill, New Bedford, Mass.,

has resigned to accept a similar position with the Grinnell Mill, same city.

E. Allen Crowell, overseer of dyeing at the Amherst Mfg. Co., Amherst, Mass., has severed his connection with that company.

William E. Rowlandson, for the past four years overseer of dyeing at the New England Bunting Co., Lowell, Mass., has severed his connection with that company.

William Sykes has accepted the position of overseer of dyeing at the Amherst Mfg. Co., Amherst, Mass.

Henry W. Swan, overseer of carding at the Nemasket Mill, East Taunton, Mass., has severed his connection with that company to accept a similar position with the Versailles Sanitary Fibre Mill, Versailles, Conn.

Thomas E. Hunt has accepted the position of overseer of carding at the Nemasket Mill, East Taunton, Mass. He comes from Pawtucket, R. I.

F. M. Folks, overseer of carding at the Chinnabee Mills, Talladega, Ala., has resigned to accept a similar position with the Bonham Mills, Bonham, Tex.

H. T. French, formerly superintendent of the Conneross Yarn Mills, Batesville, Miss., has accepted a similar position with the Panola Cordage Co., same city.

G. Bright, overseer of carding at the Southern Mfg. Co., Athens, Ga., has resigned to accept a similar position at the Gainesville Cotton Mills, Gainesville, Ga.

W. H. Broughton, assistant superintendent of the Humboldt Cotton Mills, Humboldt, Tenn., has been made overseer of carding at that mill.

A. T. Guy has accepted the position of overseer of the cloth room at the Poe Mfg. Co., Greenville, S. C. He was formerly employed at the Pelzer Mills No. 4, Pelzer, S. C.

O. H. Moore has accepted the position of overseer of carding and spinning at the Harden Mfg. Co., Worth, N. C.

Glenn Hooper has accepted the position of overseer of carding at the Flint Mill, Gastonia, N. C.

C. E. Davis, superintendent of the Manchester Mfg. Co., Manchester, Ga., has resigned and is succeeded by Thomas Hall.

W. F. O'Pry has accepted the position of overseer of carding at the Fairfield Mill, Winnsboro, S. C., succeeding H. P. Hancock, who resigned. He comes from Randleman, N. C.

B. A. Kincaid has accepted the position as overseer of carding, spinning, twisting, spooling, winding and reeling at the Kindley Cotton Mill, Mt. Pleasant, N. C., assisted by C. V. James in the card room. Mr. Kincaid comes from Worth, N. C.

F. H. Doyle has accepted the position of designer at the Airlie Mill, Hanover, Conn. He was formerly employed at the Yantic Woolen Co., Yantic, Conn.

Alonzo Farnell, agent of the Woonsocket Worsted Mills, Woonsocket, R. I., tendered complimentary event to the members and friends of the Cricket Club, at the St. James Hotel, for the triumphs they achieved on the cricket field in the past season. Abraham Booth, secretary of the Club, spoke of the average of each player during the season. Joel M. Bense represented Edwin Farnell, who was absent because of illness. After the banquet those present enjoyed themselves by listening to a musical program and speeches by different members of the Club.

Henry Fitzgerald has been appointed superintendent and designer for the Baltic Mills, Enfield, N. H. He was formerly employed as designer at the Robert Dobson Co., Pioneer Woolen Mills, Pittsfield, Me.

Joseph Costine, overseer of finishing at the Garland Woolen Co., Staffordville, Conn., has severed his connection with that company.

P. J. Keenan has accepted the position of overseer of carding and spinning for J. A. Humphrey & Sons, Moncton, N. B., Canada. He comes from Utica, N. Y.

E. S. Dean, graduate of the Textile School of the A. & M. College, Raleigh, N. C., has been appointed assistant agricultural technologist for the Government in Washington, D. C. Mr. Dean's work will consist particularly in getting out the official standard cotton grades.

S. H. Smith has been appointed Southern agent for the Steel Heddle Mfg. Co. of Philadelphia. Mr. Smith is a graduate of the A. & M. College of Raleigh, N. C.

Charles A. Soper has been appointed manager of the Kalamazoo Blanket Mill, Kalamazoo, Mich. He comes from New York, where he was connected with an old established firm for a number of years.

Peter Sheehan has been appointed overseer of dressing at the Hillsboro Woolen Mill, Hillsboro, N. H. He was employed for several years with the Saugus Mfg. Co., now the Iroquois Mill, Saugus, Mass.

Isaac Macking, overseer of weaving at the Acushnet Mill, New Bedford, Mass., has resigned. He was presented with a self reclining Morris chair by the help in his department.

George Oldham, overseer of drawing-in and slashing at the Grinnell Mill, New Bedford, Mass., has resigned to accept a similar position with the Soule Mill, same city.

John Leiper has been appointed superintendent of the Danielson Cotton Co., Danielson, Conn., to fill the position made vacant by Gordon A. Johnson. Mr. Leiper was formerly employed at the Gosnold Mill, New Bedford, Mass.

Daniel Fitzgerald, overseer of weaving at the Arden Mill, American Woolen Co., Fitchburg, Mass., has severed his connection with that company. He was presented with a leather traveling bag in which was a rain coat, smoking and shaving set.

Hugh F. Boyle, overseer of drawing and slashing at the Soule Mill, New Bedford, Mass., has resigned his position after being employed for that company for eleven years. He was presented with a fine roll top desk by the employes in these departments.

George P. Bannigan has been appointed managing superintendent of the Manufacturers Silk Co.'s plant at Reynoldsville, Pa.

William Hair has accepted the position as overseer of dyeing at the Pawcatuck Woolen Mills, Westerly, R. I. He was formerly employed at the Oakland Mfg. Co., Reisterstown, Md.

J. H. Ewing has succeeded E. B. Sanders as overseer of weaving at the Hartwell Mills, Hartwell, Ga. He was formerly employed at Newry, S. C.

Charles N. Taylor has accepted the position of overseer of dyeing at the Holt-Granite Mills, Haw River, N. C. He comes from Middletown, Conn.

W. P. Holt, superintendent of the Holt-Granite Mfg. Co., Haw River, N. C., has resigned to accept a similar position with the Locke Mills, Concord, N. C.

C W. Rhodes has been appointed superintendent of the Cherryville Mfg. Co., Cherryville, N. C. He comes from Lincolnton, N. C.

J. H. McClellan has accepted the position of overseer of carding and spinning at the Hartwell Mills, Hartwell, Ga., succeeding W. A. Brooks and G. W. Skelton.

J. M. Suing, overseer of carding and spinning at the Chesterfield Mills, Petersburg, Va., has resigned on account of ill health. W. H. Campbell succeeds him.

N. W. Hinton has accepted the position of section-hand over spooling and warping at the Calhoun Mills, Calhoun Falls, S. C.

John P. Campbell has accepted the position of general manager of the Utica Fine Yarn Co., Utica, N. Y. He was formerly connected with the Walcott & Campbell Spinning Co., New York Mills, N. Y.

Theo. G. Beckert has been appointed superintendent and designer at the Malone Woolen Mill, J. O. Ballard & Co., Malone, N. Y., to succeed M. J. Shaughnessy. Mr. Beckert comes from Rockland, Me.

Samuel Diggle has accepted the position of overseer of bleaching at the Stark Mill, Manchester, N. H. He was formerly employed at the American Ramie Manufacturing Co., New Hartford, Conn.

V. E. Austin has accepted the position as overseer of dyeing at the Seabright Woven Felt Co., Camden, Me. He comes from Dexter, Me.

Fred Rauger has accepted the position of overseer of weaving at the California Woolen Mills Co., California, Mo. He comes from Prairie du Chien, Wis.

Martin Lonergan, for the past eighteen years in charge of the starch room in the cotton department of S. Slater & Sons, East Village, Webster, Mass., has resigned to accept a similar position with the Dempsey Bleach & Dye Works, Pawtucket, R. I.

A. Alan Orfird has accepted the position as overseer of the cloth room at the Bernon Mill, Georgiaville, R. I. He formerly held a position with the Hamilton Woolen Co., Amesbury, Mass.

Charles E. Hartley, overseer of carding at the Chicopee Mfg. Co., Chicopee Falls, Mass., has resigned.

Frank P. Fitzsimmons, superintendent of the Utica Fine Yarn Co., Utica, N. Y., has severed his connection with that company. He was formerly employed at the Skenandoa Cotton Co., of the same city.

Martin Harding has accepted the position as overseer of carding at the Millers River Mfg. Co., Athol, Mass. He was formerly employed at the Faulkner Mfg. Co., North Billerica, Mass.

Stephen D. Bennett, superintendent of the Booth Mfg. Co., New Bedford, Mass., has severed his connection with that company. He is succeeded by William Booth, who is the oldest son of George H. Booth, agent of this mill.

Clarence Nicholson has accepted the position as overseer of carding at the Norfolk Mill, Cochrane Mfg. Co., East Dedham, Mass. He comes from North Vassalboro, Me.

William Davis has been appointed overseer of carding at the Estes Mill, Fall River, Mass. He was formerly second hand in the carding department in the Chace Mill, same city.

Martin Countermarsh has accepted the position of overseer of carding at the Brampton Woolen Co., Penacook Mill, Penacook, N. H. He comes from the Lebanon Mill, American Woolen Co., Lebanon, N. H.

Charles V. Browne has been appointed overseer of finishing at the Brampton Woolen Co., Penacook Mill, Penacook, N. H. He comes from the Jefferson Mfg. Co., Jefferson, Mass.

T. J. Nevins has been appointed overseer of weaving at the Brampton Woolen Co., Penacook Mill, Penacook, N. H. He was formerly employed at the Patrick Duluth Woolen Mill, Duluth, Minn.

John S Hetherington, for the past three years overseer of weaving, burling and sewing at the Bound Brook Woolen Mills, Bound Brook, N. J., has resigned to accept a similar position with the Auburn Woolen Co., Peterboro, Ont., Canada. Before leaving Bound Brook he was presented with a handsome walrus traveling case.

John Furder has accepted the position of overseer of spinning at the Booth Mfg. Co., New Bedford, Mass.

Robert E. Jepson has accepted the position of overseer of finishing at the Rock Rum Mills, Goshen, Ind. He comes from Adrian, Mich.

J. F. Hamel, second hand in the carding department at the Dana Warp Mill, Westbrook, Me., has severed his connection with that company.

John Hartley, overseer of dyeing at the Merrimack Woolen Co., Lowell, Mass., has severed his connection with that company.

George Slocum has accepted the position of overseer of carding at the Beckman Co., Cleveland, O. He was formerly employed with the Collings, Taylor & Co., same city.

William Furbush has been appointed overseer of weaving at the Cocheco Woolen Mfg. Co., East Rochester, N. H He was formerly loom fixer at this mill.

Thomas Smith has accepted the position of overseer of dyeing at the Bellevue Mills, Clinton, Mass. He comes from Worcester, Mass., and was formerly employed at the Woolen Mfg. Co., Beaver Dam, Wis.

Archibald Ormiston has resigned the position of overseer of dyeing at the Bellevue Mills, Clinton, Mass.

William Turnbull has accepted the position of designer at the Smith Woolen Co., Pittsfield, Me.

Harry Swinglehurst has been appointed general superintendent of the knitting machinery plants for Scott & Williams, Inc., of Laconia and Lakeport, N. H., to succeed F. E. Miller. Mr. Swinglehurst has been associated with this company for many years and for some time acted in the capacity of sales agent in the Philadelphia territory.

George A. Vosburgh, formerly superintendent of the Roxford Knitting Co., Philadelphia, Pa., has been appointed superintendent of the Mohawk Mill of the Wright's Health Underwear Co., Cohoes, N. Y.

Romeo Maillv has accepted the position of overseer of knitting at the Globe Knitting Works, Middleville, Mich.

Charles H. Porter, instructor of the knitting department at the New Bedford Textile School, New Bedford. Mass., has resigned to accept the position of superintendent of the Penman's, Ltd., Paris, Ont., Canada. Mr. Porter has been connected with the New Bedford Textile School for the past ten years and previous to that time was superintendent of the Musgrove Knitting Co., Pittsfield, Mass. Mr. Porter has had a wide experience and is fully capable of handling the position which he has accepted.

Frank Payton has been appointed instructor of the knitting department in the New Bedford Textile School, New Bedford, Mass., to succeed Charles H. Porter. Mr. Payton comes from Lowell, Mass., and has been a successful superintendent in a number of large knitting mills.

M. K. Pasco, superintendent of the American Hosiery Co., New Britain, Conn., has tendered his resignation to accept a similar position with the Oakes Knitting Mill, West Roxbury, Mass.

Henry Jean has accepted the position of overseer of the stitching department for the Zimmerman Mfg. Co., Hamilton, Ont., Canada. He was formerly employed at the Lawrence Knitting Co., Lowell, Mass.

Edward L. Dummer has accepted the position of superintendent of the American Hosiery Co., New Britain, Conn.

Manuel J. Stevens, overseer of carding at the LaGrange Cotton Mills, LaGrange, Ga., has resigned.

J. H. Merritt has been appointed superintendent of the Hutcheson Mfg. Co., Banning, Ga.

John Price, overseer of spinning at Winona, Miss., has resigned to accept a position at the Rhode Island Mills, Spray, N. C.

W. W. Gregg, overseer of carding at the Glencoe Mills, Columbia, S. C., has resigned to accept his former position as overseer of carding with the Kinston Cotton Mills, Kinston, N. C.

Richard A. Boerner has been appointed agent of the Aetna Mill, Watertown, Mass., to succeed John Simson. Mr. Boerner was formerly employed at the Bradford Mill, John & James Dobson, Philadelphia, Pa.

Arthur Butterworth has accepted the position of overseer of finishing for the Squam Lake Woolen Co., Ashland, N. H. He was formerly employed at the South Bend Woolen Co., South Bend, Ind.

Benj. Hesford, overseer of spinning, warping and spooling at the Wamsutta Mill, New Bedford, Mass., has severed his connection with that company. On his retirement he was presented with a handsome dining room set and hall clock by the help in his department. Mr. Hesford has been in the employ of the Wamsutta Mill for twenty-one years.

At the annual meeting of the Pawtuxet Valley Overseers' Association recently held the following officers were elected: Byron Brown, Hope Valley, R. I., president; Alvah E. Bullock, Centreville, R. I., vice president; William Wood, Centreville R. I., treasurer; Dwight R. Adams, Centreville, R. I., secretary. About fifty members were present at the meeting.

DEATHS

Robert Knight, owner of a large number of cotton mills in Rhode Island, Connecticut and Massachusetts, died at his home in Providence, R. I., at the age of 86 years. He was born in Old Warwick, R. I., and was the son of Stephen and Welta (Brayton) Knight. His first mill employment was in the Cranston Print Works of Cranston, R. I., later accepting the position of clerk in the Pontiac Cotton Mill. Later he rented the mill and at the end of a few years, purchased the same. With his brother, Benjamin B. Knight, he took control of many mills formerly operated by A. & W. Sprague. Fifteen years ago Robert Knight came into control of twenty-two weaving, spinning and finishing establishments.

Herbert Lubelski, president of the Luvan Knitting Co., Paterson, N. J., died at his home in that city. He was born in 1871. After studying silk manufacture in Europe he became the superintendent of the Paragon Silk Co. He is survived by a wife and two children.

David D. McTaggart, treasurer of the Worcester Warp Compressing Machine Co., of Worcester, Mass., died in that city from an attack of the grippe. Mr. McTaggart was born in Barre, Mass., 38 years ago, and after a thorough training in the business of the Warp Compressing Machine Co., succeeded to the management of the business on the death of his father some years ago. Mr. McTaggart was the inventor of a number of textile machines and proved his business capacity by his successful management of the company.

George L. Manning died at his home in Westfield, Mass., at the age of 80 years. He was a veteran thread manufacturer and had been superintendent of the Wm. Warren Thread Works, Westfield, for a number of years. Mr. Manning was born in Willington, Conn., and is survived by a widow, one brother and a sister.

John Taylor died at his home in Hancock, Mass., following an attack of apoplexy at the age of 83 years. Mr. Taylor was formerly a woolen manufacturer. He is survived by a sister with whom he lived.

Merritt F. Whipple, widely known as a woolen manufacturer in the State of Rhode Island, died at his home in Providence, R. I., after an illness extending over two and one-half years. He was 67 years of age and was born in Burrillville, R. I., April 2, 1845. Mr. Whipple built and operated the Greenville Woolen Mill of Greenville, R. I., retiring from the woolen business several years ago to take up a business of dealing in textile machinery. A widow and four daughters survive him.

Elisha L. Palmer, a member of the Palmer Bros. Co., New London, Conn., manufacturers of bed comfortables, died at his home after a short illness at the age of 74 years. He is survived by a wife, two daughters and one son.

Willard A. Bullard, president of the Riverside Cotton Mill and the West Point Manufacturing Co., at West Point, Ga., died at his home at Cambridge, Mass. He was also president of the Harvard Trust Co., and a director of the Chattahoochee Valley R. R. of Georgia.

David C. Nimlet, a retired cotton goods manufacturer and partner in the firm of William Whittaker & Sons, Philadelphia, Pa., died at his home in that city at the age of 72 years. He was born in Glasgow, Scotland. He came to America when a boy entering the employ of the Whittaker Cotton Mill, afterwards being appointed manager. Mr. Nimlet was formerly president of the First National Bank of Philadelphia. At his death he was a director of the Second National Bank and also a director of the William Wood & Co.'s Iron Mill at Conshohocken, Pa. A widow and two daughters survive him.

Rev. Dr. David Henry Carroll, president of the Consolidated Cotton Duck Co., Baltimore, Md., died at his home in that city at the age of 72 years. He became identified with the Mt. Vernon Cotton Duck Co. in 1882 and after the death of his father he acted as general manager. In 1886 he was elected president of the Laurel Co., and in 1889 when the consolidation of these companies with others took place under the name of the Mt. Vernon Woodbury Cotton Duck Co., he became a director. Four years later the Consolidated Cotton Duck Co. was formed and he was made vice president and secretary, later becoming treasurer and still later made president of the company. He is survived by a sister and a nephew.

William Campbell Clark, president of the Clark Thread Co., Newark, N. J., who died in that city recently, was buried from his home on November 16. The interment was in Mr. Pleasant Cemetery. Mr. Clark was the son of James Clark of Paisley, Scotland, and was 49 years of age. He came to this country when sixteen years of age and after spending two years in college he entered the Clark Thread Mills, where he soon mastered the details of the business and eventually became president of the company.

John K. Russell, for a number of years superintendent of the Grosvenordale Mill, North Grosvenordale Conn., and later general manager of the R. D. Wood & Sons Mill, Millville and May's Landing, N. J., died at his home in Manchester, N. H., at the age of 63 years. Mr. Russell resigned from active mill work some years ago on account of ill health. A widow and one daughter survive him.

Louis J. Saxton, president of the Saxton Woolen Corporation, Norwich, Conn., died at his home in that city at the age of 74 years. He was a Civil War veteran. His health had been extremely good until he had a shock a few days before his death. A widow, two sons and three daughters survive him.

William Cooley Neil, a pioneer manufacturer, died at his home in Salt Lake City, Utah. Mr. Neil was born in Cambria, N. Y., in 1828. He took up his residence at Salt Lake City in 1862 and afterwards became connected with the Ogden Woolen Mill. He is survived by a widow, one son and a daughter.

Richard Otis Cheney, director of the firm of Cheney Bros., South Manchester, Conn., president and general manager of the South Manchester Railroad, and one of the leading citizens of this place, died at his home on Thursday, November 14. He was born in Manchester, Conn., March 1, 1841.

Henry A. Farrington, head of the cloth department at the Amoskeag Manufacturing Co., Manchester, N. H., died at his home after ten days' illness. He was a member of several fraternal orders and had served as councilman and alderman. Mr. Farrington had been employed at the Amoskeag Manufacturing Co. for a number of years and was spoken of highly.

William E. Joslin, president and treasurer of the Joslin Manufacturing Co., Providence, R. I., died at his home in that city after a long illness. He had been in poor health for the past five years. He was a well known Rhode Island manufacturer, and a member of the Squantum Association, the Providence Board of Trade and the Ancient Lodge of F. & A. M. of Nashua, N. H. Mr. Joslin was born in Johnston, R. I., March 13, 1842. He is survived by a widow and one son.

Mill News

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires, facts and gossip of the trade are referred to the TEXTILE ADVANCE NEWS, issued weekly by the publishers of the TEXTILE WORLD RECORD, at $15.00 per year. Communications for this department are invited. There is no charge made for printing notices of new mills, enlargements, improvements, etc.

COTTON.

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New Mills.

*California, Los Angeles. Arthur Bridgman, secretary of the Western Industrial Development Co. Title Insurance Bldg., Los Angeles, who are fiscal agents for the new Los Angeles Cotton Mills Co., recently chartered with authorized capital of $750,000, advises that the project is only in the preliminary stage. The promoters are getting matters into shape and preparing a statement. It is planned to locate a cotton mill on the Pacific coast and tentative arrangements have been made for a manager.

*Canada, Ontario, Welland. The Empire Cotton Mills, Ltd., incorporated a few weeks ago with authorized capital of $3,000,000, have concluded negotiations for a site comprising 15 acres and, according to report, will begin the construction of buildings at once. The plans call for a mill 2 stories, 116 by 247 ft.; another building, 188 by 230 ft.; a third building, 100 by 400 ft.; fourth mill, 60 by 230 ft., all of brick. This will be a 25,000-spindle plant. C. T. Grantham, formerly treasurer and agent of the Imperial Cotton Co., Ltd., at Hamilton, later connected with the International Cotton Mills Corp., heads the new company.

Illinois, Quincy. In the last few months L. E. Barnes, at one time agent of the Pemberton Co. and Methuen Co. at Lawrence and Methuen, Mass., has investigated various cities in the middle west with regard to the advantages they offer for cotton manufacturing. A decision has been reached to attempt to form a half million dollar company to build and operate a cotton mill at Quincy. A committee has been appointed by the Chamber of Commerce to investigate the project and devise means of raising the $250,000 which Quincy people will be asked to subscribe.

*North Carolina, Charlotte. The Johnston Mfg. Co., incorporated several months ago to manufacture coarse cotton yarns, by C. W. Johnston, president of the Highland Park Mfg. Co. and others, has organized with C. W. Johnston, president and Horace Johnston, secretary and treasurer. Details of plant have been given previously. Stuart W. Cramer of Charlotte is architect and engineer in charge.

*North Carolina, Henderson. The new Harriet Cotton Mills No. 3 is nearing completion and it will probably be equipped and in operation by the first of the year. The building is of brick and cement construction, 2 stories high, 100 by 136 ft. Electric power equipment will be installed. Work on this mill was started in May.

Pennsylvania, Philadelphia. Patrick McPeak has leased a portion of the building at Mascher and York Sts. and equipped it with 8 looms and 1 sewing machine, which he is operating on Turkish towels, finishing the production and selling direct.

Pennsylvania, Philadelphia. Messrs. Armshire & Wheeler, dealers in second hand textile machinery at 2410 N. 2d St., report that they are equipping a new plant at Green Lane and Mitchell St., Manayunk, with eight 92-inch looms, and auxiliary machinery, on which cotton bed spreads will be manufactured by the Empire Bed Spread Mills. The plant will probably be in operation within a week or so.

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Enlargements and Improvements.

Canada, New Brunswick, St. John. Extensive additions to the equipment of the Cornwall and York Cotton Mills are planned. Some of the old equipment will be replaced by new machinery and an increase will be made in the capacity. The York factory will be extended by an addition, 22 by 60 ft., and a new cotton warehouse will be built, 60 by 80 ft.

Canada, Ontario, Hamilton. Canadian Cottons, Ltd., have purchased land on Simcoe St. which will be used for the purpose of extending the plant.

Georgia, Villa Rica. Additional machinery is arriving for the Villa Rica Cotton Oil Co. and will be in operation January 1. This increase will give a total of 5,000 spindles on which cotton skein yarns are manufactured.

Massachusetts, New Bedford. A number of tenement houses owned by the Wamsutta Mills are being torn down to make way for a large new cotton shed.

Massachusetts, White Valley. White Bros., owners of the White Valley Mills, are replacing the old carding and picking equipment with the most modern machinery. In connection with this improvement the mill foundations are being strengthened.

*New York, Capron. The proposed increase in the capital stock of the Sauquoit Spinning Co. from $600,000 to $1,100,000 was voted at the meeting of stockholders. Combed and carded yarns are manufactured and, as noted previously, an increase of several thousand spindles is to be made.

North Carolina, Brevard. An increase of equipment is being considered by the directors of the Brevard Cotton Mills. Cotton yarns are manufactured on 4,000 producing and 2,000 twister spindles. The plant was formerly known as the Transylvania Cotton Mill Co.

North Carolina, King's Mountain. Dobby heads are being placed on 129 looms by the Dilling Cotton Mills. Heretofore this company has manufactured sheetings exclusively.

North Carolina, King's Mountain. The Anna Cotton Mills will dispose of their weaving department, consisting of 121 looms on which sheetings have been made, and in the future manufacture yarns exclusively. They are now putting in twisters to make ply yarns from 20s to 30s. The yarn machinery is to be rearranged and eventually all the space will be filled up.

North Carolina, Lexington. The directors of the Dacotah Cotton Mills are considering a plan to add 4,800 spindles and about 200 looms next spring, also to build a small addition to the mill for warping and spooling. At present this plant has equipment of 10,560 spindles and 336 looms, making white and colored cotton goods.

North Carolina, Long Island. Changes in the waterpower plant of the Long Island Cotton Mills are about completed. $8,000 is being expended on this improvement.

North Carolina, Salisbury. In about three weeks the addition to the Vance Cotton Mills will be completed and equipped with 2,496 twisting spindles. E. B. Neave is treasurer and buyer, and A. C. Lineberger, president.

*North Carolina, Statesville. The project to double the capacity of the Paola Cotton Mills which has been under consideration by the directors for several months, will be carried out and the capital stock will be increased for this purpose. At present 5,500 spindles are operated on 20s and 30s cotton yarns, single and ply. Eugene Morrison is president; A. P. Steel, vice-president, and N. B. Mills, secretary and treasurer. Contract for a 128-ft. brick addition to the present building has been awarded to W. L. Harbin of Lexington, N. C., which will give space for 5,000 to 6,000 spindles.

Pennsylvania, Philadelphia. Louis H. Foster, manufacturer of Turkish towels, terry cloths and wash rags at 1729 N. Phillip St., operating 32 narrow and 14 broad looms, is looking for larger quarters with a floor space of 10,000 sq. ft., with a view of removing and largely increasing his plant.

Pennsylvania, Philadelphia. D. Jamison's Sons, manufacturers of Turkish towels, etc., at Trenton Ave. and Sargeant St., have started up an annex at 2011 E. Arizonia St. The combined equipment of both plants is 40 wide, 60 narrow looms and 7 sewing machines. They sell direct.

Rhode Island, Providence. The Grant Mills of the Hebron Mfg. Co., one of the B. B. & R. Knight interests, is being enlarged by a 4-story addition, 276 by 111 ft. On completion of the enlargement the equipment will be increased from 10,000 spindles and 300 looms to 25,000 spindles and 600 looms. Other changes will be made to provide storage accommodations.

*Rhode Island, Warren. New spinning equipment has been received by the Cutler Mills and set up It was noted in August that about 4,000 spindles will be added to make a new line of carpet yarns, etc.

Rhode Island, Westerly. Twenty more automatic looms have been received by the new Westerly Textile Co. and are being set up on the second floor of the mill. This is a new plant for making scrims and mosquito netting. Fred E. Fowler is manager.

South Carolina, Abbeville. The question of building an addition at the east end of the present mill, which will approximately double the capacity of the plant, is being discussed by the officers of the Abbeville Cotton Mills. This company operates at present 28,000 ring spindles and 940 looms on sheetings. H. A. Hatch is president and J. F. Barnwell, treasurer.

*South Carolina, Darlington. Within a short time a meeting of the stockholders of the Darlington Mfg. Co. will be held to consider a plan to add new looms and other machinery.

*South Carolina, Easley. New machinery is rapidly being installed in the addition recently built for the Glenwood Cotton Mills and some of the new equipment will be in operation early in December. Sixty days will be required to start all the new machinery. A 3-story brick mill, 342 by 105 ft., of brick and concrete construction, was built at a cost of $80,000 and is being equipped with new machinery which includes 20,000 spindles and 560 looms, with steam power equipment. The capital has been increased from $240,000 to $600,000.

South Carolina, Fork Shoals. In the course of the next six months the Katrine Mfg. Co. will add a weaving department to use the yarn production. The class of goods to be made has not been decided upon. B. E. Geer is president and treasurer.

South Carolina, Gaffney. At an early date the Globe Mfg. Co. will add about 40 looms to be equipped with dobbies for weaving fancy goods.

South Carolina, Greer. From Greenville sources it is reported that the Franklin Mills are considering the advisability of replacing all old style plain looms with new automatic looms. If this change is made it will be completed before July 1 next year. Four and five-yard sheetings and drills are manufactured on 10,000 ring spindles, 240 broad and 72 narrow looms.

South Carolina, Greenwood. It is reported that the men who control the Grendel Mills propose to make additions to No. 2 Mill during the coming

South Carolina, Inman. Improvements are being considered by the directors of the Inman year. A F. McKissick is president and treasurer. Mills which include replacing the entire weaving equipment of common looms with new automatic looms. The matter will have their careful consideration and a final decision in the matter is not expected for some time yet. Fine sheetings are manufactured on 33,000 ring spindles and 840 broad looms.

*South Carolina, Liberty. The addition to the Easley Cotton Mills No. 2, formerly the Liberty Cotton Mill, on which work was started July 1, is practically completed, and the installation of machinery will be started shortly with a view of having the enlargement fully equipped and running by the first of the year. This enlargement will give the plant a capacity of 25,640 spindles and 600 looms on which print cloths will be made. The Easley (S. C.) Cotton Mills purchased this prop-

erty several months ago, as noted. L. W. Rice will be superintendent.

South Carolina, Ninety-Six. Consideration is being given to the matter of building an addition to the Ninety-Six Cotton Mill by the officers and the matter will be decided during the coming year. At present 23,744 ring spindels and 537 looms are operated on print cloths.

South Carolina, Seneca. The Seneca Cotton Mills of the Monaghan group of the Parker Cotton Mills merger are to begin the installation and changing machinery in a few days, the new additional building now being completed. It is proposed to add to the loom equipment by transferring the plain looms to this plant from the Beaver Dam Mills at Edgefield, also controlled by the Parker Cotton Mills Co.

South Carolina, Tucapau. Improvements are being made in the weaving department of the Tucapau Mills, including the replacement of all twine harnesses by drop heddles.

Tennessee, Knoxville. Further reports of the enlargements at the Brookside Mills state that 2 stories will be added to the spinning mill, 257 by 130 ft., and a 200-foot extension built on the weave shed. Construction contract has been awarded to Sullivan & McNally Co., Paterson. They have not made arrangements for machinery and have not fully decided what equipment is to be installed.

WOOLEN.

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New Mills.

*Maine, Corinna. The directors of the new Corinna Mfg. Co. expect to begin manufacturing during December with 2 sets of cards, 2 mules of 360 spindles each, and 20 or 24 looms on cotton warp sackings. Construction work was started on the building in June. The company was incorporated several months ago with capital stock of $50,000. J. H. Winchester is president; J. E. Gray, treasurer, and F. J. Ward, superintendent and buyer. The looms will be driven by individual electric motors. Negotiations are now being made with a concern to act as selling agents and this matter will be decided in a few days.

Massachusetts, Monson. There is a possibility that a felt manufacturing industry may be established in Monson. Several prominent citizens, including Mr. Heimann of Heimann & Lichten, felt hat manufacturers, and A. Langewald, formerly superintendent of S. F. Cushman & Sons' woolen mill, are interested. It is estimated that between $30,000 and $40,000 must be raised and if there is sufficient interest a mill owned by Mr. Langewald will be secured. Men prominently identified with the project feel confident that a felt plant will be established here.

Pennsylvania, Philadelphia. The Superior Textile Mills, located at Howard and Montgomery Ave., reported by us as about to commence manufacturing textile fabrics, will soon apply for a charter. The capital stock will be $15,000. Alfred LeMark will be treasurer and William J. Simpson, general manager and superintendent. The plant contains 20 broad looms on which they are manufacturing men's wear and dress goods, cottons and worsteds, which they are selling direct and through agents.

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Enlargements and Improvements.

*Canada, Ontario, Pembroke. Three additions are being built to the Pembroke Woolen Mills, the largest, 100 by 40 ft. It has been noted previously that this plant is being increased from a 1-set mill to a 3-set mill.

Canada, Ontario, Almonte. The Rosamond Woolen Co has installed a new chinchilla machine in the finishing department.

Kentucky, Louisville. Twenty-four new broad looms are being installed by the Louisville Woolen Mills. This is said to be the beginning of a movement to replace all the old looms with new ones.

Maine, Camden. The addition built to the plant of the Knox Woolen Co. the past summer has been equipped with 1 set of cards and the usual complementary machinery.

Maine, Dexter. The Greenwood Woolen Co. of North Dexter, is installing another set of cards, also starting up 8 more looms. The plant is being run four nights a week to catch up on orders.

Massachusetts, Lawrence. Some new equipment is being set up in the plant of George E Kunhardt.

*Massachusetts, North Adams. The new filtration plant of the Hoosac Worsted Mills is completed and has capacity of filtering 1,000,000 gallons of Hoosac river water per day.

*Massachusetts, North Chelmsford. The addition to the Silesia Worsted Mills announced last week will be in three sections, each 3 stories high, and will increase the capacity of the plant about 20 per cent. The present north and south wings are being torn out to give way to new buildings and workmen are starting excavating for foundation on the ground that is clear.

Massachusetts, Worcester. Plans have been prepared for a new building to be equipped as a dye house for M. J. Whittall, carpet manufacturer, also for an addition to the present dye house. The new building will be 2 stories high, 25 by 35 ft., of brick construction. The present dyeing facilities have been outgrown.

*Minnesota, Minneapolis. Improvements in the water power department of the North Star Woolen Mill Co., which were begun in the summer, are completed and completely modernize this department.

New Jersey, Vineland. The Fowler Waste Mfg. Co., manufacturers of cotton and woolen wastes, batts and shoddies, have enlarged their equipment and are now operating 9 garnetts and 6 shoddy pickers. They have also installed a dye house in which they are dyeing raw stock and yarns. They sell direct

Pennsylvania, Reading. The Henry R. Miller Co., 4th and Laurel Sts., manufacturers of ladies'

wool hats on six sets, are erecting an addition to their plant, 65 by 65 ft., four floors and basement. They expect the operation to be finished by Jan. 1 next, which will enable them to install additional machinery and greatly increase their production.

Pennsylvania, Philadelphia. The G. Woolford Wood Tank Manfg. Co., 2nd and Somerset Sts., have recently contracted with the Andrews Mills Co., Adams Ave. and Leiper Sts., Frankford, for the installation of a number of large tanks. The Andrews Mills Co. are manufacturers of men's wear and dress goods which they dye and finish, being one of the largest mills in this section running on this class of work.

Rhode Island, Pawtucket. Men are at work preparing a site for a large new dye house for D. Goff & Sons. It is understood that the enlargement will not be made at present, however. A retaining wall has just been completed at the water's edge while a section of a ledge in the rear is being blasted away so that there will be nothing to delay the work when plans shall have been prepared for the new dyeing establishment. The dyeing for D. Goff & Sons is now done at the dye house on Front St. and it is the desire of the company to consolidate its business and bring all its departments together at one plant. A new electric power plant is under construction, as noted recently, and is to be completed by January 1.

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Mills Starting Up.

Connecticut, Putnam. C. F. Waterman and P. L. Waterman, formerly with the French River Textile Co. of Mechanicsville, will start up No. 2 Mill of the Putnam Woolen Co. on worsted goods. They are at present engaged in getting out samples.

Maine, Madison. All departments of the Indian Spring Mill of the American Woolen Co. have been started up. The mill was closed for two weeks while repairs were made on the water power equipment. These changes have not been completed, but a large motor has been installed and power secured from the Great Northern Paper Co.

Massachusetts, West Millbury. The Ramshorn Mill has been taken over by the Millbury Mills and the weaving department started up. The Millbury Mills leased the looms in the Ramshorn Mill previously, but several months ago were given notice to vacate and the estate of Edwin Hoyle, who own the property and operated the carding and spinning departments under the management of Chas. F. Day, operated the whole plant. For the last few weeks the mill has been shut down.

Minnesota, St. Cloud. The St. Cloud Woolen Mill has been sold to Joseph Rose of Grand Forks and Stephen Hall of Duluth by Harrison & McElroy, who have owned the property for some time. The new owners plan to put the mill in operation and, according to one report, double the capacity. Mr. Rose is to move to St. Cloud and take charge of the operation of the mill. The plant contains 2 sets of cards, 3 knitters and 4 looms which when operated made knitting yarns, blankets and lumbermen's socks.

New Hampshire, Penacook. Arrangements have been completed by the Brampton Woolen Co. of Newport, to lease the plant of the old Concord Mfg. Co. in Penacook, and operate it as a branch under the name of the Brampton Woolen Co., Penacook Mill. It is expected the plant will be started up about December 1 on broadcloths and ladies' sackings. V. J. Brennan will be agent and general manager, and T. F. Brennan will be in direct charge of this plant as superintendent.

KNIT.

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New Mills.

*California, Los Angeles. Last April we reported that the Wittenberg Co., hosiery jobbers, would start a hosiery mill in the fall under the name of the Isis Hosiery Mills. A plant has been established and is equipped with 25 knitting machines, making men's and women's 176 and 220-needle mercerized and lisle hosiery. It is equipped with dyeing and finishing departments. E. J. Wittenberg attends to the buying.

*Canada, New Brunswick, Moncton. J. L. MacDonald, manager of Humphreys Unshrinkable Underwear, Ltd., is in the United States completing the purchase of equipment for the new concern. Manufacturing will be started about January 1 with 5 sets of cards, 1,872 woolen spindles, 12 latch needle knitting machines and 20 sewing machines. Men's all-wool underwear will be the sole product. A building 3 stories high, 160 by 35 ft., on Church St., has been purchased and two additions, one 2 stories high, 100 by 70 ft., and another 1 story high, 100 by 35 ft., are being constructed. The latter building will be used for power and for wool scouring. Natural gas will be used for power and a bleaching department for bleaching goods in the roll will be installed. The authorized capital stock is $500,000. F. W. Sumner has been elected president; W. F. Ferguson, treasurer, and J. L. MacDonald, manager and buyer. Mr. MacDonald has been secretary, treasurer and managing director of the Glendyer Woolen Mills, Ltd., at Glendyer, Nova Scotia.

Canada, Ontario, Hamilton. Temporary quarters have been provided for the new knitting mill project of Richard Thomson, Harold G. Smith and John Penman by the purchase of a 4-story brick mill building. Mr. Thomson has been in the United States purchasing machinery to be installed in this mill. A $1,000,000 company will be formed and it is planned to build a large new mill later on. Mr. Thomson was formerly general manager of Penmans, Ltd. Mr. Smith had charge of the fine hosiery manufacturing at Penmans, Ltd., and John Penman was also connected with the concern, but retired on the reorganization of the corporation several years ago.

Delaware, Wilmington. E. Sutro & Son Co., Philadelphia, will establish a branch in Wilmington, occupying the two upper floors in the Sternberg Bldg. at 5th and French Sts. E. Sutro & Son Co. are manufacturers of men's, women's, misses' and infants' cotton and silk seamless hosiery on 450 latch needle knitting and 80 embroidery machines at E. Thompson and E. Clearfield Sts., Port Richmond, Philadelphia. The New York office is at 346 Broadway.

Indiana, Fort Wayne. The B & B Knitting Co. has been incorporated with capital stock of $10,000 by Geo. H. Butler, Adam Baus, Edith A. Butler and Carrie L. Baus. Mr. Butler and Mr. Baus are both knitters employed at the Wayne Knitting Mills and will establish a small knitting plant here.

*Maryland, Frostburg. Manufacturing has been started at the branch mill of the Parker Hosiery Mill & Dye Works, Inc., of Portsmouth, Va., under the direction of D. M. Mullen, formerly of Mechanicsburg, Pa. H. A. V. Parker has the general supervision of the branch and attends to the buying. Fifty knitting machines have been installed for making seamless hosiery.

New York, Amsterdam. Van Brocklin & Sons, manufacturers of jersey mitts and gloves, mufflers, rubber boot socks, slippers and other novelties at Northville, have leased the factory building at 60 and 62 Spring St. and will install machinery ready to begin manufacturing about December 1. The mill in Northville will be kept running until about January 1 and at that time it will be decided whether they will discontinue manufacturing in Northville or continue to operate both plants. They expect to give employment to about 80 hands in Amsterdam. Electricity will be used for motive power. M. Van Brocklin is superintendent and Eli Van Brocklin, buyer.

North Carolina, Salisbury. A company has been organized under the name of the Meredith Hosiery Mfg. Co. and has leased a building and installed 20 knitting machines. This equipment will be increased. W. L. Horah is manager.

*Ohio, Cleveland. The Fashion Knitting Co., reported incorporated last week with capital stock of $10,000, is located at W. 2d St. in the Fountain Bldg., and will shortly begin the manufacture of full fashioned sweater coats for men, women and boys, also skirts and toques, with 14 knitting machines and 4 sewing machines operated by electric power. Frank H. Murphy is president; E. S. Couzens, treasurer and buyer, and Aug. Roser, superintendent. L. H. Ruehl & Co. of Chicago, will be the selling agents.

*Ohio, Columbus. In June an outline was given of a plan to equip a spinning and knitting department at the Ohio Penitentiary under the direction of the Ohio Board of Administration. The project has made good progress and within the next few weeks a complete knitting mill to supply inmates of all the State institutions with underwear will be put in operation. Robt. Weddell, Cohoes, N. Y., has been secured to act in the capacity of superintendent. 24 knitting machines and 30 sewing machines have arrived.

*Pennsylvania, Chambersburg. Fifty knitting machines have been installed so far in the branch of the Blue Ridge Knitting Co. of Hagerstown, Md., which was recently established here. Additional machines will be installed as rapidly as they can secure help. All purchases are made at Hagerstown, Md.

*Pennsylvania, Gibraltar. The new hosiery plant being established here will be known as the Gibraltar Hosiery Mills and the manufacture of half hose will be started about December 1 with 50 knitting machines.

*Pennsylvania, Perkasie. The Perkasie Silk Co., reported incorporated last week with capital stock of $25,000, is a new silk throwing mill project. Early in 1913 work will be started on the construction of a mill and it is expected that the building will be completed and equipped with 5,000 spindles, electric power equipment, etc., by the first of July. Officers have not been elected, but the company is headed by J. H. Frederick, who is interested in broad silk weaving plants at Emaus and Bath, Pa.

Pennsylvania, Philadelphia. William F. Taubel f Riverside, N. J., at this time operating six branch mills in this city on hosiery and neckties, is about to equip another plant at Emerald and Westmoreland Sts., where he has just leased manufacturing space.

Pennsylvania, Pottsville. In September it was reported that John Hock was making arrangements to start a plant for the manufacture of children's goods. Mr. Hock has equipped a plant at 335 and 337 Prospect St. with 7 knitters and 18 table machines and is making children's waists, operating by electric power. Additional equipment is to be added later.

*Pennsylvania, Shoemakersville. It was recently reported that Ed. T. Williams would equip a mill in Hamburg, for making underwear. The new plant will be located in Shoemakersville, and will make full lines of ladies' goods, using 12 combed and carded, 24 and 26 combed and carded yarns. Manufacturing will be started about January 1 with 10 knitting and 12 sewing machines, operating by steam power. Benj. M. Bhaer is associated with Mr. Williams in this enterprise. Business will be done under the style of the Merit Underwear Co.

Pennsylvania, Schaefferstown. A small concern has been formed here under the name of Houser's Hosiery Mills for the purpose of beginning the manufacture of hosiery.

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Enlargements and Improvements.

Canada, Ontario, Kingston. The Kingston Hosiery Co., Ltd., is putting in one set of new cards and 6 knitting machines. Underwear and hosiery are manufactured.

Canada, Ontario, Stratford. The Avon Hosiery Co., Ltd., manufacturers of woolen and worsted hose and half hose for men, women and boys, have recently installed knitting machines on which they are manufacturing a line of silk knitted neckwear.

Canada, Quebec, Sherbrooke. It is reported the Sherbrooke Knitting Works, manufacturers of athletic hosiery, sweaters, cardigans and fancy knit goods on 6 knitters and 4 sewing machines, will equip a new factory in Sherbrooke.

Canada, Ontario, Dunnville. The Erie Knitting Co., Ltd., recently purchased the building occupied by the concern and additional knitting machinery is being installed. Sweater coats and similar goods are manufactured.

Canada, Ontario, Hamilton. The Eagle Knitting Co., Ltd., is installing a number of new knitting machines and sewing machines. The plant is being operated night and day.

Canada, Ontario, Huttonville. John McMurchy, proprietor of the Huttonville Woolen Mills, is reported to be considering enlargements which will double the capacity. Two sets and 50 knitting machines are operated on men's and women's hosiery and lumbermen's socks.

*Connecticut, Hartford. In the future all manufacturing of the Hartford Knitting Co. will be done at Derby, Conn., where 6,200 ft. of floor space formerly occupied by A. H. & C. B. Alling Co. has been secured. The offices will be continued at Hartford. It has been noted recently that the Hartford Knitting Co. purchased some of the equipment of the Alling company and increased its capital to $35,000. At the present time they are setting up the machinery in Derby that was formerly operated here and the mill will start manufacturing within a few days. They will manufacture ladies' and half hose in silk and lisle to retail for twenty-five and fifty cents, using silk on cones, also cotton yarns on cones, 1/30, 1/36, 1/70, 2/80 combed peelers and lisle. John J. Campbell of Hartford is president, secretary and general manager; S. Youngerman of Hartford, next to the largest stockholder in the Wise & Smith Department Store of Hartford, is vice-president and general sales manager; N. S. Lippett, State bank examiner of Connecticut, is treasurer, and Andrew Mitchell of Derby, is superintendent. Mr. Campbell is buyer. In addition to the officers, the directors are Joseph Hubenger, director in several banks in New Haven, and president of the Eastern Machine Screw Co., and L. H. Holmes of Shelton. These changes give the Hartford Knitting Co. about 115 knitting machines, 25 ribbers, 15 loopers, bleaching, dyeing, finishing and electric power equipment. At present no dyeing will be done, but the concern will do its own finishing. The product will be sold direct to retailers.

*Illinois, Champaign. The Textile Mfg. Co. will rebuild at once the plant recently destroyed by fire. A mill 210 ft. in length, 50 ft. wide, 2 stories high will be erected on the site of the old mill and until this building is finished temporary quarters will be occupied here. It is expected the new plant will be ready shortly after the first of January.

*Indiana, Indianapolis. The Harbottle Knitting Co., incorporated in August with a capital of $200,000 by F. B. Harbottle, L. J. Smith and W. E. Stephenson, has taken over the business of the Indianapolis Knitting Co., assuming the contracts, etc., of that corporation and filling all its orders. The new company will continue to make the same styles formerly made by the Indianapolis Knitting Co. and in addition will introduce new lines and largely increase the production and output of the mills. At present there are 50 spring and 20 latch needle knitting machines and 150 sewing machines operating on men's flat cotton underwear. Mr. Harbottle will act as buyer.

*Maine, Lewiston. Following the recent increase in the capital stock of the Jutras All-Wool Knitting Co. from $5,000 to $15,000, increases are being made in the equipment. J. C. Mangold is president; P. C. Jutras, treasurer, superintendent and buyer. Men's, women's and children's all-wool stockings are manufactured.

*Michigan, Pontiac. The new 2-story brick building to be built for the Pontiac Knitting Co. will be used largely for office purposes.

*New Jersey, Paterson. Five more knitting machines have been added to the equipment of the Helvetia Knitting Mills. This is a small company making sweaters for men, women and children, which recently moved to the second floor of the building at the corner of Church and Market Sts.

New Jersey, West Hoboken. A new concern known as Azoon, Bonamy & Trabilcy Co. which is manufacturing silk knitted neckwear here, has recently installed a steaming and finishing plant.

New York, Clinton. The Clinton Knitting Co., manufacturers of worsted sweater coats, contemplate building an enlargement to increase the capacity. Some difficulty is being experienced in the purchase of the land needed and the officers have made a statement that the plant may be removed to Rome.

New York, Brooklyn. The Mace Manufacturing Co., 908 Broadway, manufacturing a line of knitted neckwear, are arranging for the installation of ten new knitters for the purpose of increasing their production.

New York, Cohoes. A new cone winder and drawing frame are being installed by the Fuld & Hatch Knitting Co.

New York, Johnstown. A large addition is being built for the Johnstown Knitting Mill Co., Inc., which will be 40 by 70 ft., of concrete and brick construction. It will be equipped for use as a drying room and dye house. According to plans the addition will be ready for occupancy by January 1. The present drying and dyeing equipment will be moved from the present location to the new addition and the space vacated in this way will be filled up with machinery which will give an increase in production of about 300 dozens a day. Men's and children's balbriggan underwear is manufactured on present equipment of 55 knitting machines and 65 sewing machines. W. T. Briggs is treasurer, general manager and buyer, and Chas. W. Hill, superintendent.

New York, New York City. The Martin Knitting Works, a new concern which recently started a plant at 31 Walker St. for manufacturing knitted neckwear, sweaters and novelties, has moved to larger quarters at 35 6th Ave. Ten additional machines to make knitted neckwear have been installed. H. Phillips is manager and buyer.

New York, Troy. Wright's Health Underwear Co. are having plans drawn for a large addition to be constructed on the north side of the Aetna Mill. A $33,000 reinforced concrete addition built on the south side is nearly completed.

New Publications

(Any work noticed under this head can be obtained through the office of this journal.)

Spinning and Twisting (Spinnerei und Zwirnerei), by Prof. Max Guertler; 142 pages, 4 by 6; G. J. Goeschen'sche Verlagshandlung, Berlin, Germany. Price 50 cents.

This is the first volume of a series that when complete will cover the entire textile industry. The object of the series is to give a concise and clear account of the various branches of science and industry. Each book is complete in itself, but the entire set forms a continuous and systematic treatise of the various subjects. The text is in German.

Knitting Hosiery and Other Goods on Hand Machines (Die Strumpf & Wollwaren Fabrikation aug Strickmaschien), by Otto Nagler, Dresden, Germany; 190 pages, 5 1/2 by 8 1/2; published by the author. Price $2.50.

As its name indicates, this book deals with the manufacture of hosiery and articles of wool on the hand knitting machine. It is intended as a book of instruction for those engaged in the household knitting industry of Germany. The book begins with a brief account of the hand machine which is followed by instructions for knitting different kinds of hosiery and a great variety of knit articles, such as jackets, sweaters, hunting coats, vests, children's suits, infant's vests, shirts, petticoats, combination suits, drawers, caps, bonnets, mufflers, corset covers, arm warmers, breast and back warmers, lung protectors, bottle warmers, can warmers, furniture covers, throat protectors, neckties, shoes, slippers, wash cloths, ear warmers and gloves. There are many excellent illustrations in the various articles. The text is in German.

The Self Actor and its Mechanism (Der Selfactor und sein Mechanismus), by Franz Lukas, Rossbach, Bohemia; 95 pages, 5 by 8; published by the author. Price $1.50.

This book has been written in order to provide woolen spinners with a concise and thoroughly practical explanation of the mechanism of the self actor. The author, in the introduction, states, what is certainly true in this country, that many overseers of spinning have but a very imperfect understanding of the mechanism connected with the self-acting mule. Workers in other departments of the textile industry have many excellent books to explain the operation and construction of the machines under their care; this is true of cotton spinning; but woolen spinning has been neglected by writers in all countries. To supply this lack the present volume has been written and the self-acting mule of the Saechsische Maschinenfabrik vorm. Rich. Hartman, Chemnitz, Germany, has been selected for illustrating the subject. The book is illustrated by drawings of different parts of the machine. Directions are given for regulating the mule to suit various kinds of work. Some thoroughly practical spinner could render a great service by writing a similar work on the self-acting mule as used in American woolen mills. The text is in German.

BUSINESS LITERATURE

The Cord Age; American Mfg. Co., corner Noble and West Sts., Brooklyn, N. Y.

A 20-page booklet describing and illustrating Manila rope, cable, twine and yarn manufactured by this company, and the uses to which it is adapted.

"What We Make"; Green Fuel Economizer Company, Matteawan, N. Y.

A 48-page book describing fuel economizers, both standard and special, coverings for fuel economizers, mechanical draft outfits, heating, ventilating and drying outfits, hot blast heaters, steel plate fans, motor and engine driven fans, cast iron volume blowers, slow speed and standard speed planing mill exhausters, fan and cone wheels, wool wheels, ventilator wheels, propeller fans, vertical and horizontal engines and mechanical draft dampers.

Light, Its Use and Misuse; Illuminating Engineering Society, 29 W. 39th St., New York; 20 pages, 6 by 9.

This is described as a primer of illumination and has been prepared to give information regarding the principles underlying proper illumination of offices and workrooms. It contains a number of striking illustrations showing the right and wrong methods of illumination. The reader cannot fail to gain much useful information from it.

De Laval Steam Turbines, Multi Stage Type; De Laval Steam Turbine Co., Trenton, N. J.

A 120-page catalogue which describes and illustrates the De Laval steam turbine. A third or more of this catalogue is devoted to a discussion of the best method of reconciling the high speed natural to steam turbines with the low or moderate speeds of driven machinery. The book also contains a chart accompanied by a "steam scale" by means of which the energy available from the expansion of steam between given limits can be read off directly as heat units.

The Best Proportions of Boiler and Economizer Surface; Green Fuel Economizer Company, of Matteawan, N. Y.

In this booklet a method is developed for determining the proper limits of boiler and economizer surface and it is shown that the most economical results are obtained from a boiler properly proportioned for transmitting the heat of evaporation, with an economizer for progressively warming the feed water. The practical result is a boiler of 4 to 6 square feet per boiler horse power, discharging gases at 600° to 700° F. to an economizer in which they are cooled to 300° F. or lower, depending upon whether or not mechanical draft is used. It is pointed out that the economizer transfers two or three times as much heat as could the same amount of additional boiler surface at the same point in the travel of the gases, because of the

greater temperature head available between the hot gases and feed water as compared with that between gases and steam, the result being greater steam making efficiency at lower cost.

Industrial Notes

THE SPIRO TURBINE

This turbine, built by the Buffalo Forge Co., Buffalo, N. Y., has proved very successful and is now in use in a large number of plants in different parts of the country.

Among installations are the following: The Glenwood Cotton Mills, Easley, S. C., The Wallace Mills, Jonesville, S. C., and the Newnan Cotton Mills, Newnan, Ga. In these mills the Spiro is direct connected to a centrifugal pump, a combination which has proven unexcelled for simplicity, compactness and almost automatic operation Other users are the American Zinc Company, Mascott, Tenn., Tupelo Cooperage Co., Waverly, Va.

In many cases, the Spiro is direct connected to a fan used for ventilation, for conveying cotton shavings and sawdust, or exhaustng from slashers. The Spiro driven fan is in many cases preferable to a motor-driven outfit, as it is equally silent and automatic, and most economical in steam consumption. Small turbo-generator outfits, ranging in size from 1 up to 75 k. w. are also coming into use, especially as an auxiliary for night service, when it is wasteful to keep the main units running.

The Moline Lumber Co., Malvern, Ark., have a Spiro turbine in operation and report that it works well. The entire equipment of the new plant of this company is considered a model. The Spiro resembles an electric motor on account of its extremely small size and its quiet operation. So smoothly does it run that a full length lead pencil can be on the top of the cylinder while the turbine is running at a speed of 3,000 revolutions per minute under full load!

The durability of a new machine is, of course, always subject to some conjecture. The advantages of the Spiro in this respect is that there are no blades to come loose or erode, no nozzles, no valves, links, levers, eccentrics or other delicate wearing parts found in ordinary engines and turbines. The parts subject to wear are reduced to the two rotors and the bearings. For the sake of obtaining accurate data, based on actual performance, as to the durability of these two parts, several turbines have been taken apart and examined. One of these has been in use for over one year, being subjected to continuous day and night service, often without a minute's stop for six weeks. The combined wear on the shaft and bearings of this outfit amounted to less than 0.0005 inch, and the finest instruments failed to reveal any wear whatever on the rotors. By way of comparison it is interesting to observe that the bearings of a fan in the same identical case showed a wear of 1/4-inch.

Another Spiro turbine had been in use for 2 1/2 years, for 10 hours per day. It was driving a disk fan, placed in the wall above the boilers in the boiler room, exhausting heat, steam and coal dust. The coal dust was drawn by the fan directly against the drive end of the turbine and the result was a covering of dirt in places several inches deep. In spite of this, the bearings had not suffered visibly, and the wear on the rotor surface was so insignificant that the minute scratches caused in the process of manufacture by being ground in with emery dust and oil, were still visible.

The Buffalo Forge Company early this spring found the orders coming in so fast that extensive additions had to be made to their shops and new equipment installed.

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FIRES DISCOVERED BY SPRINKLERS

An evening fire in the main mill of the Woodside Cotton Mills caused damage amounting to $76. A single Grinnell automatic sprinkler head opened and put out this fire and at the same time gave notice that fire existed. The fire itself was not seen by any person.

A similar fire, shortly after midnight, in the size building of the International Paper Co. was handled by three Grinnell heads. In this case again the operation of these heads caused the discovery of the fire. The only damage to the building was the partial burning of three window sashes. A number of bundles of tissue paper were charred around the edges and others somewhat damaged by water.

Another early morning fire in a storehouse of the Boston Duck Co. caused by spontaneous combustion, was brought to attention by the ringing of the sprinkler alarm. It appeared that this water had been running for about two hours, no one having heard the alarm until a man happened to pass the mill. This points to the need of having the alarm gong either near enough to some man on duty for him to hear it, or else to have electric alarm rung either in the superintendent's house or in the fire department.

A fourth fire which was completely prevented from spreading by one Grinnell sprinkler, occurred early in the morning in the Utz & Dunn shoe factory. In this case the watchman heard the sprinkler alarm, located the fire and called the department.

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NO LOSS SPRINKLER FIRES

The Bigelow Carpet Co., Lowell, Mass., had a fire in the shaving vault which was extinguished by two Grinnell automatic sprinklers. The cause of the fire was unknown; the damage was too slight to require making claim on the insurance company.

Five separate fires in the Tallassee Mills, Tallassee, Ala., had the same result, the loss in each case being so slight that no claim was made for damages. In these five fires only five automatic sprinkler heads opened, thus showing how quickly these devices operate and how little is the water which they use in extinguishing a fire.

OPEN BRANCH WAREHOUSE IN ATLANTA

The H. W. Johns-Manville Co. have recently opened a new warehouse at No. 31 1/2 South Broad St., Atlanta, Ga.

The entire building, embracing three floors and a basement, with a total floor area of about 10,000 square feet, will be utilized exclusively as a warehouse for a stock of such J-M products as roofing, boiler and pipe coverings, cements, packing, fire extinguishers, electrical, railway and automobile supplies.

A feature of particular advantage in this new site will be found in the location of the Atlanta office of the H. W. Johns-Manville Co. in the same building with the local warehouse, which will materially reduce the chances of delay in deliveries.

BOSTON KISSEL KAR STATION

The new Boston Kissel Kar station has been completed and opened for business, adding one more to the chain of model service buildings which are being erected throughout the country for the patrons of the Kissel Motor Car Company of Hartford, Wis.

The Boston building, which is well located at 1030 Commonwealth Ave., is typical of the Kissel Kar structures now under way in other cities. It is of reenforced concrete, 74 feet frontage and 200 feet depth. It is two stories high. The first floor front is devoted to the sales room and private offices. The sales room is 74 feet wide and 70 feet deep and is finished in bog green cypress. The floor is polished adamant.

In the balcony overlooking the sales room are located the general offices, stock room and vaults. In the rear is a perfectly equipped garage, among its features being an elevator 10 by 28 feet, one of the largest ever built. A big turntable to facilitate the handling of cars is also a prominent feature. Adjoining the garage there is a commodious and comfortable rest room for Kissel Kar chauffeurs.

The second floor is devoted to commercial delivery wagons and trucks, roomy exhibition space being set aside for this purpose. In the rear is the repair shop, which has been equipped with every conceivable mechanical device for speedy and thorough work.

HOLOPHANE NAME RESUMED

Owing to certain legal complications which occurred at the time the General Electric Company took over the Holophane sales department, it became necessary to use another name for the joint organization of Holophane and Fostoria lines. For this reason the word "Nelite" was adopted.

The legal objections have been overcome. On October 21st it was decided to resume the name "Holophane," which has such an excellent reputation throughout the country for quality of both goods and service. The full name of organization will hereafter be "Holophane Works of General Electric Company," instead of "Nelite Works of General Electric Company."

This change, however, will not effect the different brands of trade names which the organization controls, such as Fostoria products, Iris glassware, Holophane reflectors, Holophane-D'Olier steel reflectors, etc., which will all retain their present names.

CHARLES BOND ON THE BUSINESS SITUATION

Our representative recently called on Charles Bond, of Philadelphia, who was asked regarding the condition of business in his various enterprises. Mr. Bond is president of the Charles Bond Co., Philadelphia, who are manufacturers of leather belting and dealers in general mills supplies, the Bond Foundry & Machine Co., Manheim, Pa., manufacturers of power transmitting specialties, and distributing their goods all over the world, and having several agents in England and on the Continent, the Manheim Manufacturing & Belting Co., Manheim, Pa., manufacturers of "Veelos" Balata belting, the Canadian Bond Hanger & Coupling Co., Ltd., Alexandria, Ontario, which is practically a duplicate of the Bond Foundry & Machine Company plant, stationed at Alexandria to take care of the Canadian demands.

In a general way Mr. Bond reported that the Philadelphia supply business was very good and as his business is with the various industries, it would show a healthy condition of affairs. The Charles Bond Company have just closed a contract with the Germantown Tool Company, and are equipping their plant with shafting, hangers, etc.

As far as the Bond Foundry & Machine Company's business is concerned, Mr. Bond reports that they have been very busy and are doing a constantly increasing business; in fact, they have just found it necessary to put up a $20,000 addition. The "Veelos" Balata belting plant being, comparatively speaking, new, is doing a very satisfactory business and building up a very good clientele. The Canadian plant reports business for September somewhat below normal, but so far the October business has been very gratifying.

AN OPTIMIST—WITH GOOD CAUSE

One of the Taft presidential electors for Massachusetts, although defeated, still believes the business interests of the country would have been better conserved by the reelection of Mr. Taft, but is nevertheless quite happy over the business outlook for 1912-13. This man, J. W. H. Myrick, Member, A. S. H. V. E. and inventor of the Autoforce ventilating system, Boston, Mass., told one of our representatives that, despite the defeat of Mr. Taft, business is booming and orders received since the election indicate an increase in ventilating business, which with him is an indication of better business conditions in other lines. Mr. Myrick added that it is the duty of everyone to back up the choice of the majority and not start or encourage any calamity howl. Among some of the recent orders for the Autoforce ventilating system are the following:

Saco-Pettee Co., United States Finishing Company, Standard Oil Co., Salts Textile Mfg. Co., Pacific Mills, Plunkett's Mills, Berkshire Cotton,

Wanskuck Mills, W. E. Tillotson Mfg. Co., Seydel Mfg. Co., The M. T. Stevens & Sons Co., E. Cummings Leather Co., Joseph Fahys & Co., Crow Blacking Co., Hamilton Watch Co., Steinway & Sons, B. F. Goodrich Co., Fort Pitt Hotel, Burgess Sulphite Fibre Company, Apponaug Company, Plymouth Cordage Co.

According to Mr. Myrick, who in his capacity as a ventilating engineer, is frequently called into consultation, textile manufacturers are now giving careful consideration to the proper ventilating of their mills. They realize now more than ever before the absolute need of pure, fresh air in both summer and winter, in dry and damp weather.

Aside from humanitarian reasons for bettering the working conditions in the textile mills, bleacheries, dye houses, etc., mill men are finding that there are sound economical reasons why they should change the conditions and ventilate as efficiently as possible, in order to improve and multiply the producing capacity of the employes. Improved ventilation, meaning better air, also means increased vitality and enables employes to maintain a maximum degree of efficiency in their work, which results in a greater output, and fewer seconds or damaged goods.

THE TEXTILE EXHIBITORS' ASSOCIATION

The largest annual meeting in its history was held by the Textile Exhibitors' Association last month, more than half the members being present. The officers laid before the association a plan which has been under consideration for some time to incorporate under the laws of Massachusetts. The meeting voted to take steps for incorporation and in order that the plans for the new company might receive the careful consideration of all the members, it was decided to postpone the final action in the matter until a later meeting, which would not only consider this question, but elect new officers and decide about the next exhibition.

NEW DYESTUFF FIRM

Baumann & Monnier is the name of a new firm organized November 1st by G. A. Baumann and E. A. Monnier, well known in the dyestuff trade through their connection with the firm of A. Klipstein & Company. They expect to do a general and brokerage business in chemicals, dyestuffs, drugs, gums, oils, etc.

The Arabol Mfg. Co., 100 William St., New York, suggest that manufacturers who use tallow as a softener make a trial of the Arabol soluble softening oils, which give smooth finish to the warps, easy parting of the threads in the lease rods, and a bright and clean appearance of the slasher cylinders. Especially good results are obtained with closely woven goods, such as corduroys, velveteens, sateens, umbrella cloths and cambrics. The seasons have no influence on soluble softening oil, which remains sweet, uniform and pliable summer and winter. It is neutral and easily blended.

SHORTAGE OF AUSTRALIAN WOOL CLIP

From Sydney Sun

The loss to Australia caused by the last drought, as revealed in the wool clip, is expected to run into something like $25,000,000. The number of sheep estimated to have died in the dry period was between 5,000,000 and 6,000,000, and in addition it is regarded as improbable that of the lambs more than 25 per cent. survived.

The effect of the season is being plainly felt at the present wool sales. Even the clips raised away from the drought area are less valuable than usual. Almost over the whole of New South Wales and Queensland the fleeces are lighter—in some cases 2 pounds, and if not as high as that everywhere, certainly not much less. The clips from the tablelands and slopes did not suffer to the same extent, but these fleeces were reduced in value by reason of the fact that there was a good deal of seed distributed among them.

The falling off in the wool clip is expected to represent 20 per cent. of last year. Competent judges—the men who are in touch with all the wool producers and handle nearly all the wool clipped—reckon that the returns will be approximately as follows, compared with last year. (The figures for Australia include also the New South Wales clip, which is also stated separately):

	1911	1912
Australia, bales	2,020,547	1,600,000
New South Wales, bales..	1,036,000	800,000
Australia, value	$117,586,193	$93,110,600
New South Wales, value..	60,292,844	46,548,000

The United States Government has awarded a large order for boiler compound amount to 85,000 pounds to the George W. Lord Company.

Sanford E. Thompson, consulting engineer, has opened a Boston office in the Oliver Bldg., 141 Milk St. His main office and laboratory is still maintained at Newton Highlands, Mass.

The Durham Hosiery Mills, Durham, N. H., are installing electric drive in their mills at Chapel Hill, N. C. The new equipment consists of a 750 kv-a. Curtis turbo-generator with a 7 k. w. motor-generator exciter set and a 7 k. w. turbo-exciter, one 30 k. w. transformer and switchboard. For application of the power throughout the mills eleven motors will be employed ranging from 25 to 100 h. p. capacity. All the apparatus is being supplied and installed by the General Electric Company.

The Pacific Mills, Lawrence, Mass., are adding to the equipment of their power station a 1,000 kv-a. generator and switchboard. The order for this apparatus was placed with the General Electric Company.

The American Thread Co. is equipping its Merrick Mills at Holyoke, Mass., with a new 500 k. w. Curtis turbo-generator and a 7 k. w. direct connected exciter. The General Electric Company is furnishing the apparatus and making the installation.

Recent Textile Patents

BLEACHING APPARATUS. Eugene D. Jefferson, Lowell, Mass.

CARDING, Etc., Machines, Alarm Mechanism for. 1,043,486. Michael W. Walsh, Hinsdale, Mass.

DOUBLING MACHINE. Fabric. 1,042,129. Albert Leisel, Newark, N. J.

DRYING APPARATUS. 1,043,982. Tozaburo Suzuki, Tokyo, Japan.

DYEING of Cotton or Linen Cloth with Vat Colors. 1,043,016. Adolf Kertesz, Mainkur, Germany.

ELASTIC FABRIC or Webbing. 1,042,632. Charles J. White, New Britain, Conn.

EMBROIDERY MACHINE. 1,043,685. Edgar Friedman, New York.

FABRIC MACHINE. 1,043,897. George E. Bigelow, Waterbury, Conn.

FABRIC SHRINKING Machine. 1,043,742. Edgar W. Vincent, Watervliet, N. Y.

FABRIC SINGEING Machine. 1,043,672. George Collins, Dubuque, Ia.

HOSIERY and Knitting Same, Shaped Seamless. 1,042,152. Robert W. Scott, Leeds Point, N. J.

LACE MAKING Machine. 1,042,003. Ferdinand Holzrichter, Barmen, Germany.

LOOM-SHUTTLE. 1,042,282. Arthur W. Saunders, Lowell, Mass.

LOOM, Fringe. 1,044,226. Herman J. Mueller, Philadelphia, Pa.

LOOM SHUTTLE Threader. 1,043,780. Joseph N. Le Vasseur-Belisle, Worcester, Mass.

LOOM, Multiple. 1,042,359. Georges Gratreau, Paris, France.

LOOM WARP Stop Motion. 1,043,814. John F. Dustin, Lawrence, Mass.

LOOM, Weft Replenishing. 1,041,844. Alfred F. Morell, Worcester, Mass.

LOOM WARP Tension Device. 1,044,205. Hamilton Lindsay, Cleveland, O.

LOOM, Weft Replenishing. 1,042,774. Bernhard Elmendorf and Johannes Gabler, Isselhorst, Germany.

LOOMS, Filling-thread-cutting Mechanism for Weft Replenishing. Eppa H. Ryon, Waltham, Mass.

LOOMS, Shipper-locking Means for. 1,042,461. Cabell W. Megginson, Danville, Va.

SHUTTLE. 1,044,372. Joseph Gagnon, Fall River, Mass.

SPINNING MACHINE Spindle-driving Device. 1,042,659. Ignaz Etrich, Oberaltstadt, Austria.

THREAD-CARRIER. 1,043,788. Anker Petersen, Boston, Mass.

THREAD CUTTING and Holding Attachment for Spools. Theresa I. Butts, Albuquerque, N. Mex.

THREAD GUIDE. 1,044,068. Arthur A. Merritt, Worcester, Mass.

TIRE FABRIC. 1,043,143. Harry K. Raymond, Akron, O.

YARN GUIDING, Clearing and Tension Device, Combined. 1,043,309. Louis Fessmann and Gebhard Hammerle, Augsburg, Germany.

RECENT TEXTILE TRADE-MARKS

57,954. Embroidery threads. Mark: Patrick. Owner: F. A. Patrick & Co., Duluth, Minn.

65,501. Woven fabrics composed mainly or wholly of paper threads. Mark: Rattania. Owner: Hodges Fiber Carpet Co., Indian Orchard, Mass.

66,248. Satin crepe silk piece goods. Mark: "Amoureuse." Owner: Duplan Silk Co., New York.

66,291. Cotton piece goods. Mark: Time and Tide. Owner: Grinnell Willis & Co., New York.

59,124. Hosiery. Mark: Home Run. Owner: John M. Given, Pittsburgh, Pa.

65,016. Handkerchiefs. Mark: Cabinet. Owner: J. Robinson & Co., New York.

65,017. Handkerchiefs. Mark: Monarch. Owner: J. Robinson & Co., New York.

65,513. Bleached muslin. Mark: Hope. Owner: The Hope Co., Providence, R. I.

59,125. Hosiery. Mark: Winged foot. Owner: John M. Given, Pittsburgh, Pa.

64,784. Neckties. Mark: Franklin Knitting Mills, New York. Owner: Franklin Knitting Mills, New York.

65,389. Carpets and rugs. Mark: Sovereign. Owner: Carson, Pirie, Scott & Co., Chicago.

65,467. Hosiery. Mark: Stork. Owner: Taliaferro & Sherwood, New York.

65,508. Bleached mercerized cotton goods. Mark: "Swedette." Kent Mfg. Co., New York.

65,777. Canvas ducking. Mark: Usamp. Owner: Fulton Bag & Cotton Mills, Atlanta, Ga.

65,994. Blankets, woolen piece goods and flannels. Mark: Honesdale. Owner: Birdsall Bros. Co., Seelyville and Honesdale, Pa.

65,294. Hosiery. Mark: Jacktar. Owner: John Grant, New York.

62,049. Chiffons, silk, cotton, linen and woolen piece goods. Mark: A. G. B. Owner: Louis Mondon, New York.

62,843. Cotton, linen and silk dress goods. Mark: Juteana. Owner: Joseph Hirsch & Sons, New York.

62,844. Cotton, linen and woolen fabrics. Mark: Cordette. Owner: Joseph Hirsch & Sons, New York.

63,281. Artificial silk fabric. Mark: Symlasyl. Owner: Cuthbert G. Girvan, Manchester, Eng.

63,563. Tweed. Mark: Harris Tweed. Owner: Harris Tweed Association, Ltd., London, Eng.